

AMERICAN TYPE  
CULTURE  
COLLECTION

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# AMERICAN TYPE CULTURE COLLECTION

CATALOG OF CULTURES  
SIXTH EDITION  
1958

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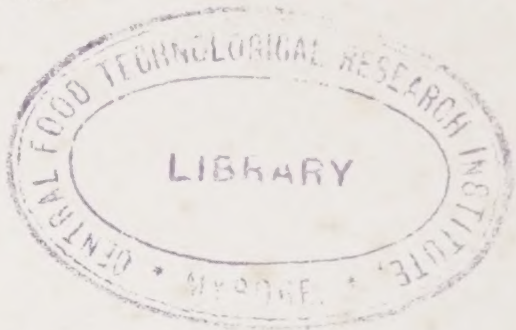
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## INTRODUCTION TO THE SIXTH EDITION

### Purpose and History of the Collection

The American Type Culture Collection is an organization developed from a "Committee on Maintenance of a Collection of Type Cultures of Bacteria," appointed under the auspices of the Divisions of Medical Sciences and of Biology and Agriculture of the National Research Council, in October 1924. Its purpose was to preserve cultures of microorganisms that have historic and scientific interest and to provide a center for obtaining cultures needed in education and research.

The nucleus of the Collection was a "bacteriological collection and bureau for the distribution of bacterial cultures" that was established by C.-E. A. Winslow at the American Museum of Natural History, in New York, in 1911. The initial support of the new organization was provided by a grant of \$24,000 from the General Education Board of the Rockefeller Foundation. The Collection came into physical being in 1925 at the John McCormick Institute for Infectious Diseases in Chicago, to which the residue of the Winslow collection was transferred after a temporary sojourn at the Army Medical Museum in Washington.

Contributions from other special culture collections were received either by outright inclusion or by arrangement to supply specimens on request. Chief among these were the Charles Thom collection of molds in the United States Department of Agriculture, the F. W. Tanner collection of yeasts from the University of Illinois, actinomycetes from the S. A. Waksman collection at Rutgers University, and special groups of bacteria from R. S. Breed of the New York Agricultural Experiment Station and E. O. Jordan of the University of Chicago. Numerous other contributions have come in the course of years from other institutions and individuals, especially the Communicable Disease Center and the National Institutes of Health of the U.S. Public Health Service, and the Northern Research and Development Division of the U.S. Department of Agriculture; also by exchange with other culture collections throughout the world. The original collection, consisting of some 160 strains of bacteria, now embraces the 4,350 strains of microorganisms listed in this catalog plus a considerable number of as yet unlisted strains that are under further study.

### Administration of the Collection

The committee under which the ATCC was organized consisted of two representatives each from the Society of American Bacteriologists, the McCormick Institute, and the National Research Council, and one each from the American Phytopathological Society, the American Association of Pathologists and Bacteriologists, and the American Zoological Society. When the Collection was returned to Washington, D.C. in 1937, after 12 years at the McCormick Institute, representation of the Institute was terminated. It was incorporated as a nonprofit organization in the District of Columbia in 1949, with control vested in a Board of Trustees composed of the remaining former participants and augmented by one representative from the Mycological Society of America and one from the American Institute of Biological Sciences. Thus its membership



reflects to some extent the interests of essentially all organizations concerned with microbiology in this country.

### Financial Support of the Collection

The original grant from the Rockefeller Foundation was intended only to get the organization underway, and its routine operations were to be supported by fees from the sale of cultures. As the expense of maintaining the Collection grew with increasing size, the charge for cultures was raised moderately. Supplementary contributions were received from some of the pharmaceutical manufacturers, and the Society of American Bacteriologists subsidized the production of the catalogs of cultures which were issued from 1927 through 1949, but all these sources of income failed to meet the rising costs of maintaining the Collection. In 1949 the aid of the National Research Council was sought to rescue the Collection from financial peril. This aid took the form of a recommendation, in which the pharmaceutical and biological industries concurred, that a premium price be paid for cultures by commercial establishments. Charitable and educational institutions, and those engaged in nonprofit research, as well as individuals, would continue to receive cultures at approximately the cost of production. Aside from an independent endowment the Collection could not exist without the subsidy derived from the commercial fees for supplying cultures. This is because many cultures, important for historical purposes and for taxonomic study, are not the ones in current demand. In the absence of the continued preservation of these, however, the Collection could not justify a claim to being a repository of type cultures.

The Collection has in the past received certain grants-in-aid from the United Nations Educational, Scientific and Cultural Organizations, and also research grants for special projects from the Army Chemical Warfare Service, the Office of Naval Research, the National Science Foundation, and the National Institutes of Health. In the main, however, it has been self-supporting, on the income from the sale of cultures. All its routine operations in the preservation and distribution of cultures are paid for exclusively from that source. These costs include quarters, equipment, materials, and personal services.

### Acknowledgments

Some of the benefactors of the ATCC have been mentioned. To them grateful appreciation is expressed. Many others, too numerous to mention individually, have been of frequent and material aid in furnishing cultures by contribution or exchange, in identifying cultures within their special area of interest, in calling attention to literature citations, and supplying reprints of their articles on which our reference library largely depends. Important recognition must be given, however, to certain culture collections and the personnel of their staffs. These include the Centraal Bureau voor Schimmelcultures of Netherlands, the National Collection of Type Cultures and other collections of microorganisms in the United Kingdom, the Northern Utilization Research and Development Division of the United States Department of Agriculture at Peoria, Illinois, the National Institutes of Health at Bethesda, Maryland, and the Communicable Disease Center of the U.S. Public Health Service at Chamblee, Georgia.

Acknowledgment and appreciation are here expressed also for contributions toward the preparation of this catalog received from the Society of American Bacteriologists, the American Phytopathological Society, the American Association of Pathologists and Bacteriologists and the Mycological Society of America.

### Distribution of Cultures

In general, the ATCC must restrict its distribution of cultures to clients who are trained in microbiology or who have access to a properly equipped laboratory under competent supervision. This is the invariable rule with respect to cultures of pathogenic organisms. Requests for cultures should show, by a business letterhead or requisition form, or in some other way, that this condition is met.

Exceptions to this rule are made with respect to certain microorganisms adapted to student use at the high school level, and some that can be used in the home preparation of beverages and milk products. Special lists of these will be sent on request.

Every effort within our means is made to provide cultures that are both pure and typical, but the Collection has only limited facilities for testing physiological and biochemical properties and none for testing animal or plant pathogenicity. It seeks and receives considerable aid from collaborators who are equipped for diagnostic studies of this type. The Collection must, however, disclaim responsibility for providing cultures that have particular and assured pathogenic and biochemical properties, but most of the strains recommended for biological assays are preserved in lyophilized form from tested cultures, and should be satisfactory if properly reconstituted and manipulated. In the event of any culture failing to prove viable, pure, and typical within these limitations, it will be replaced without charge, or the price refunded, at the option of the purchaser. It is expected that those receiving cultures will take suitable precautions to store them at a favorable temperature and to transfer them to appropriate media promptly. A claim of nonviability or other defect must be made within a reasonable time, usually two weeks, after the culture is received.

In the interest of accuracy orders should specify both the scientific name of the organism, indicated by underlining, and the strain number as given in this catalog. Many strains have different designations in other culture collections. Where only a strain number other than the ATCC is known, clients are requested to indicate the name of the collection or individual to which the number pertains, or give a literature citation that will aid in its recognition. Similarly, in requesting strains that are not found to be listed here, please give the name of the relevant author and if possible a literature citation.

At present, test tube cultures will be supplied unless lyophilized ones are requested, or if preferable or only available in that form (see separate note on Lyophilized Cultures). Cultures of a few strains, i. e. those used in testing mold resistance, are kept in stock ready for prompt sending, but most cultures must be transferred and grown before they can be sent. This may require only a day or two or sometimes several weeks. In placing orders, enough time should be allowed for the culture to grow before delivery is expected.



By direction of the Board of Trustees the price of cultures will be \$5.00 for institutional and \$12.00 for commercial orders, postpaid, effective March 1, 1959.

Because of the constant accession of new strains, which may be superior to those long kept in artificial culture, and because of corrections in identification and revision of nomenclature, the ATCC may at times substitute what are regarded as better strains than the particular ones ordered, unless the order specifies that no substitution should be made.

Information on the cultivation and maintenance of cultures ordered will be sent, when requested, with the cultures. The ATCC can not provide general directions for the cultivation of microorganisms, but would refer those needing this information to the numerous textbooks of bacteriology and mycology available in college and some general libraries. The Manual of Microbiological Methods, (1957) compiled under the auspices of the Society of American Bacteriologists, and published by the McGraw-Hill Book Co., New York, is a convenient source of much of this information.

Questions pertaining to the use of microorganisms in various technical applications, aside from those mentioned in the Use Section of this catalog and the references to literature given there, should preferably be directed to appropriate local or Federal government institutions. The ATCC claims no special competence in such matters and has no literature for distribution. It will try to be helpful to inquiring microbiologists, but it has definite—and narrow—limitations. The ATCC is unable at present to provide an identification service for unknown cultures.

### Cost of Cultures

As noted above a differential charge for cultures is made between commercial clients—those using cultures primarily for pecuniary return, whether direct or indirect—and individuals and institutions engaged in public welfare work and nonprofit research. The distinction is not always easy to apply but, in general, business firms of any kind are assumed to belong to the first category; educational and charitable establishments, nonprofit research foundations, government laboratories, and individual scientists to the second. It is incumbent on those who wish to receive the discount to establish their eligibility if their status is not clearly defined.

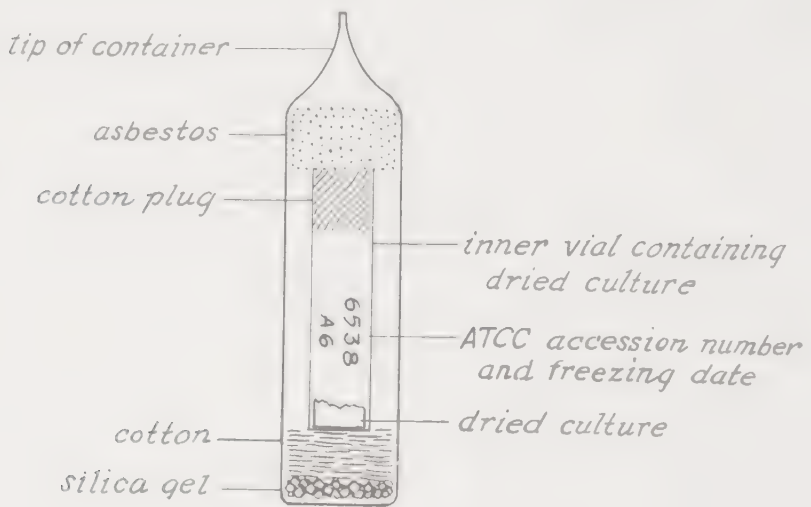
The price of cultures is uniform for all strains. The commercial rate is \$10 per culture, postpaid by 1st class mail; air mail and special delivery are extra at cost. To commercial clients who order several cultures of the same strain at one time, a quantity discount is offered; details on request. A discount of 60 per cent is given to clients of the nonprofit group, but in this case a separate charge is made to cover packing and postage. This is 50 cents for one culture, 75 cents for two up to 7 cultures, and covers only 1st class surface mail or parcel post; air mail and special delivery are extra.

These prices are net, with payment in 30 days from date of invoice. We cannot send cultures C.O.D.

### Lyophilized Cultures

A majority of the cultures in the ATCC are now maintained in lyophilized form so as to preserve them as nearly as possible in the original physiological state. It is the aim to lyophilize new accessions from the first subculture after their receipt.

When cultures are ordered in the lyophilized state they can be shipped promptly, with no delay for transfer and incubation. There is no impairment of viability during shipment as may occur with those sent in the growing state, nor is there ordinarily a need for special storage upon receipt. The double vial method and simple opening technique with our lyophilized preparations prevents exposure of the culture to air contamination, and of the worker to aerosols, resulting from sudden release of the vacuum. This method of lyophilization is described in detail in the Manual of Microbiological Methods, cited above.



*Diagram of ATCC lyophilized culture*

To open a specimen, the pointed tip of the outer vial (diagram above) is heated in a Bunsen flame and a drop of water is added to crack the glass. The tip is tapped sharply with forceps or similar tool to break it off. The inner vial containing the culture can then be removed.

To grow the culture the dried pellet is aseptically transferred en masse to appropriate broth, or about 0.3 ml of broth is added to the inner vial with a 1 ml transfer pipette and mixed with the pellet, then the resulting suspension is transferred to broth or plated. The rehydrated culture should be incubated at the appropriate temperature until growth is evident. Sometimes recovery is slow and cultures should be incubated for two weeks before they are rejected as nonviable. If a particular medium formula is enclosed with the culture, it is suggested that it be used for best results.

#### Information on Nomenclature and Description of the Strains

The strains here listed are segregated into four major groups:



Bacteria (including Actinomycetales), Bacteriophages, Fungi, including Yeasts, and Algae and Protozoa. Within each group the arrangement is alphabetic by generic and specific names. The nomenclature for bacteria conforms to that of the 7th edition of Bergey's Manual of Determinative Bacteriology (1957); for yeasts to the monograph by J. Lodder and N.J.W. Kreger-van Rij (1952); for most fungi to the Mycological Index of the U.S. Department of Agriculture, and for special groups to the Manual of the Aspergilli by Thom and Raper (1946), Manual of the Penicillia by Raper and Thom (1949), and Manual of Clinical Mycology by Conant et al. (1954).

The scientific name of each species of microorganism is placed at the head of and to the left of the list of strains of that species, and is underlined to distinguish it from synonyms and other names that may have been applied. The ATCC accession numbers then follow at the left margin, in sequence from the earlier to the most recent acquisitions.

An asterisk following the strain number indicates that the culture was received from the author who described the species and was designated by him as the type culture, or that it has been designated as a typical culture in an authoritative taxonomic work.

If the name under which the culture was received differs from the name here indicated as valid, but is a recognized synonym, it is given in parentheses after the strain number. Next, in order, are given the source (institution or person) from which the ATCC received the culture, and the strain number by which it was identified in that collection, whether personal or institutional; then the address of the contributor when this is not indicated by the symbol for the institution itself (see list of abbreviations, page x); and the year in which the culture was received. Following this there may be accessory information, such as the strain number in other culture collections, the name of the original isolator of the strain, a statement as to its special properties or use, and a literature citation.

Where recent nomenclatural changes have been made, in particular from the nomenclature adopted in the 5th edition (1949) of the catalog, cross-references are provided from the antecedent names to those employed here. Not all synonyms are thus treated, but primarily those in which the change in nomenclature may not be readily recognized. For the bacteria, reference should be made to the 7th edition of Bergey's Manual of Determinative Bacteriology to identify synonyms and nomenclature changes that are not indicated here.

Pleomorphic fungi are in general listed under the name of the perfect stage even though the culture of a particular strain exhibits only the conidial stage. In this case the conidial stage (name under which the culture was received) is indicated in parentheses, as a synonym. An exception is made in the case of *Aspergillus* and *Penicillium* where all species are listed under these names whether or not a perfect stage name has been given, and in most of the species of *Fusarium* where a perfect stage is unknown or the names are unfamiliar; likewise in *Helminthosporium*, *Rhizoctonia*, and the imperfect stages of yeasts, such as *Candida* and *Torulopsis*. In these, the name of the conidial stage is used, though the name of the perfect stage may follow within parentheses and preceded by the equal sign.

#### Abbreviations Used in Indicating the Source of Cultures

AMC	Walter Reed Army Medical Center (formerly Army Medical School and Army Medical Department Research and Graduate School), Washington, D.C.
AMNH	American Museum of Natural History, New York, New York.
CBS	Centraal Bureau voor Schimmelcultures, Baarn, Netherlands.
CDC	Communicable Disease Center, U.S. Public Health Service, Chamblee, Georgia.
CIW	Carnegie Institution of Washington, Cold Spring Harbor, New York.
CMI	Commonwealth Mycological Institute, Kew, England. Strain numbers formerly designated IMI (for Imperial Mycological Institute) are included here.
ERDC	Engineering Research and Development Center, U.S. Army, Fort Belvoir, Virginia.
FDA	Food and Drug Administration, Washington, D.C.
IFO	Institute for Fermentation, Osaka, Japan.
IHM	Instituto de Higiene Experimental, Montevideo, Uruguay.
IOC	Instituto Oswaldo Cruz, Rio de Janeiro, Brazil.
NCA	National Canners Association, Washington, D.C.
NCIB	National Collection of Industrial Bacteria, Teddington, Middlesex, England.
LM	Laboratorium voor Microbiologie, Delft, Netherlands.
NCTC	National Collection of Type Cultures, London, England.
NIH	National Institutes of Health, Bethesda, Maryland.
NRRL	Northern Utilization Research and Development Division, U.S. Department of Agriculture, Peoria, Illinois (formerly Northern Regional Research Laboratory).
QMRDC	Quartermaster Research and Development Center, U.S. Army, Natick, Massachusetts.
USDA	United States Department of Agriculture. The various divisions, except for the Regional Research Development laboratories, are not distinguished. When no address follows this symbol, one of the Washington, D.C. divisions or those located at Beltsville, Maryland, was the source.
WRRL	Western Utilization Research and Development Division, U.S. Department of Agriculture, Albany, California.

#### Other ATCC Catalogs and Lists

Separate catalogs of (1) Viruses and Rickettsiae Affecting Man and Animals, and (2) Plant Viruses, have been issued. They are currently being revised but copies of the original editions are still available.

A number of special lists of cultures, including strains that for one reason or another were omitted from this catalog, are in the course of preparation. The availability of strains other than those catalogued can be determined by correspondence.

Important Notice: Orders for virus specimens, either plant or animal, should always be sent on separate purchase requisitions from those for cultures.

## BACTERIA

- Acetobacter aceti (Beijerinck) Beijerinck  
8303 NCTC, strain 1345. 1941.
- Acetobacter acetigenus (Henneberg) Bergey et al.  
11142 NCIB, strain 5346. 1952. O. Verona, Univ. di Pisa.
- Acetobacter acetosus (Henneberg) Bergey et al.  
6438 K.B. Raper, strain B-468, NRRL. 1945. R.H. Vaughn.  
NCTC strain 2224.
- Acetobacter ascendens (Henneberg) Bergey et al.  
9323 NCTC, strain 4937. 1947.
- Acetobacter aurantius Kondo  
12301 IFO, strain 3247. 1955.
- Acetobacter capsulatus Shimwell  
11894 NCIB, strain 4943. 1954. J.L. Shimwell. J. Inst. Brewing,  
1936, 32, 585.
- Acetobacter cerinus (Asai) Kondo  
12303 IFO, strain 3262. 1955.
- Acetobacter gluconicus (Hermann)  
9324 NCTC, strain 4739. 1947.
- Acetobacter industrius (Henneberg) Bergey et al.  
12302 IFO, strain 3260. 1955.
- Acetobacter kuetzingianus (Hansen) Bergey et al.  
6439 A.J. Kluyver, LM. 1946. NCTC strain 3924.
- Acetobacter lovaniense  
12875 NCIB, strain 8620. 1956. W. Verhoeven strain L 1024.
- Acetobacter melanogenus Beijerinck  
8147 K.B. Raper, strain B-63, NRRL. 1945. R.H. Vaughn.  
9844 K.B. Raper, strain B-58, NRRL. 1945. N. Porges strain 27.  
9937 C.B. van Niel, strain MA 61, Hopkins Marine Station. 1945.
- Acetobacter mesoxydans  
12876 NCIB, strain 8622. 1956. W. Verhoeven strain L 1027.
- Acetobacter mobilis Tősić and Walker  
12877 NCIB, strain 6428. 1956. J. Tősić strain 20. J. Inst.  
Brewing, 1944, 50, 296.
- Acetobacter oxydans (Henneberg) Bergey et al.  
9433 K.B. Raper, strain B-147, NRRL. 1947.
- Acetobacter pasteurianus (Hansen) Beijerinck  
6033 A.J. Kluyver, LM. 1946.
- Acetobacter peroxydans Visser't Hooft  
838 A.J. Kluyver, LM. 1946.  
12873 NCIB, strain 8138. 1956. A.J. Kluyver.  
12874 NCIB, strain 8618. 1956. W. Verhoeven strain L 1374.
- Acetobacter rancens Beijerinck  
7839 L.B. Lockwood, USDA. 1940. N. Porges strain 38.
- Acetobacter suboxydans Kluyver and de Leeuw  
621 K.B. Raper, NRRL. 1944. A.J. Kluyver. Assay of  
p-aminobenzoic, nicotinic and pantothenic acids; production  
of sorbose. J. Biol. Chem., 1948, 174, 273.

## BACTERIA

### Acetobacter suboxydans (Continued)

621H E. De Ritter, Hoffman-La Roche, Inc. 1949. Assay of panthenol.

9322 NCTC, strain 7113. 1947.

### Acetobacter turbidans Cosbie, Tösić and Walker

9325 NCTC, strain 6249. 1947. NRRL strain B-570.

### Acetobacter viscosus Shimwell

11895 NCIB, strain 8131. 1954. T.K. Walker.

### Acetobacter xylinum (Brown) Holland

10245 Laura C. Stewart, NIH. 1947. R.H. Vaughn.

10821 NCIB, strain 1375. 1950.

### Acetobacter sp.

12878 NCIB, strain 6656. 1956. R.M. Nattrass strain Kenya 17. From vinegar.

### Achromobacter fischeri Bergey et al.: See Photobacterium fischeri

### Achromobacter hartlebii (Jensen) Bergey et al.

365 E.G. Hastings, Univ. of Wisconsin. 1925. Koch strain.

### Achromobacter lipolyticus (Huss) Bergey et al.: See Brevibacterium lipolyticum

### Achromobacter parvulus (Conn) Breed

4335 (Bacterium parvulum) H.J. Conn, New York Agric. Expt. Sta., Geneva. 1928. Expt. Sta. Bull. 1926, No. 494, p.26.

### Achromobacter perolens Turner: See Pseudomonas perolens

### Achromobacter viscosus

12448 S.R. Venkataraman, strain L35FTS, Fisheries Tech. Sta., Kozhikode, India. 1956.

### Actinobacillus lignieresii Brumpt

10811 Julia M. Coffey, strain 33444, New York State Dept. of Health. 1950. L. Thompson, Mayo Clinic. From cervical gland of cattle.

### Actinobacillus mallei (Zopf) Thompson

10399 (Malleomyces mallei) AMC, strain China 5. 1958. From lung and nose of horse.

### Actinomyces bovis Harz

10048 and 10049 C.W. Emmons, strains 1829 and 1833 (human), NIH. 1956.

12597 CDC, strain MY-565-55 (human). 1956. J.H. Spooner, New Jersey State Health Dept.

12836 Lucille K. Georg, strain B-99 (bovine), CDC. 1957.

13031 Esther Meyer, Univ. of Illinois. 1958. Isolated from case of bovine lumpy jaw.

### Actinomyces israeli (Kruse) Lachner-Sandoval

12102 and 12103 A. Howell, Jr., strains 277 and 287 (human), NIH. 1955. Proc. Soc. Staff Meet., Mayo Clinic, 1951, 26, 169.

### Actinomyces naeslundii Thompson and Lovestadt

12104 A. Howell, Jr., strain 279, NIH. 1955. From human sinus. Proc. Soc. Staff Meet., Mayo Clinic, 1951, 26, 169.

### Actinoplanes philippinensis Couch

12427 J.N. Couch, strain P-15, Univ. of North Carolina. 1956. J. Elisha Mitchell Sci. Soc., 1950, 66, 87; 1955, 71, 148.



## BACTERIA

### Aerobacter aerogenes (Kruse) Beijerinck

- 129 (*Bacterium aerogenes*) AMC. 1925.  
 211 (*Bacillus lactis aerogenes*) E.O. Jordan, Univ. of Chicago. 1925.  
 884 C.S. Gibbs, Univ. of Nanking. 1926. Fecal origin.  
 7256 W.A. Randall, Georgetown Univ. 1938. From well water.  
 8308 L.W. Parr, George Washington Univ. 1941.  
 8724 NRRL, strain B-199. 1942. Produces 2,3-butylene glycol.  
 9621 R.J. Williams, Univ. of Texas. 1944. Univ. Texas Publ., 1942, 87, 4237.  
 12409 E.M. Weber, strain 1965-29-9, Chas. Pfizer Co., Inc., Brooklyn, N.Y. 1955.  
 12657 and 12658 NCIB, strains 8805 and 8806. 1956. Wilkinson strains A3 and A3(SL). Polysaccharide production. J. Gen. Microbiol., 1954, 11, 59.

### Aerobacter cloacae (Jordan) Bergey et al.

- 222 (*Bacillus cloacae*) E.O. Jordan, Univ. of Chicago. 1925. U.S. Pub. Health Repts., 1943, 58, 1175.  
 529 (*Bacillus cloacae*) K.F. Meyer, Univ. of Calif., Berkeley. 1925. U.S. Pub. Health Repts., 1943, 58, 1175.  
 961 and 962 M. Levine, strains 1011 (1) and 1009 (21), Iowa State Coll. 1926. U.S. Pub. Health Repts., 58, 1175.  
 10699 Margaret Pittman, strain PC3B, NIH. 1949. J. Bact., 1946, 51, 19.

### Aerobacter cloacae var. marocana

- 12666 A. Castellani, Inst. de Med. Trop., Lisbon. 1956.

### Aerococcus viridans Williams et al.

- 11563\* NCTC, strain 8251. 1953. J. Gen. Microbiol., 1953, 8, 475.

### Aeromonas formicans Crawford

- 13136 R. Hugh, strain 513, George Washington Univ. 1958. H. Pivne strain 258. J. Bact., 1957, 73, 247.  
 13137 R. Hugh, strain 514. 1958. I.P. Crawford's Pacific Grove strain of *Pseudomonas formicans*. J. Bact., 1954, 68, 734.

### Aeromonas hydrophila (Chester) Stanier

- 7965 (*Proteus hydrophila*) M.L. Speck, Univ. of Maryland. 1941.  
 9071 W.L. Kulp, strain P<sub>2</sub> (smooth), Univ. of Connecticut. 1943. From frog "red-leg." J. Bact., 1942, 44, 673.  
 11165 (*Paracolobactrum aerogenoides*) S.F. Snieszko, U.S. Fish and Wildlife Service, Kearneysville, W. Virginia. 1952. From aquarium fish.  
 11438 Mary T. Clement, strain 491, Natl. Res. Council, Ottawa, Canada. 1953. From salmon with red sore disease. Can. J. Res., 1942, 20, 161.  
 11439 Mary T. Clement, strain 492. 1953. From pike with red sore disease. Production of 2,3-butanediol from beet molasses and sulphite waste liquor; xylokinase. Can. J. Technol., 1951, 29, 413; Nature, 1952, 170, 357.

### Aeromonas punctata (Zimmermann emend. Lehmann and Neumann) Snieszko

- 11163 (*Pseudomonas punctata*) S.F. Snieszko, strain A, U.S. Fish and Wildlife Service, Kearneysville, W. Virginia. 1952.

## BACTERIA

### Aeromonas punctata (Continued)

11164 (Pseudomonas punctata) S.F. Snieszko, strain G. 1952.

### Aeromonas sp.

7966 M.L. Speck, Univ. of Maryland. 1941. Received as Proteus ichthyosmia.

### Agrobacterium radiobacter (Beijerinck and van Delden) Conn

4718 I.L. Baldwin, strain C1, Univ. of Wisconsin. 1931.  
J. Agric. Res., 1930, 41, 507.

6466 and 6467 N.R. Smith, strains 36 and 188, USDA. 1938.

### Agrobacterium rhizogenes (Riker et al.) Conn

11325 A.J. Riker, Univ. of Wisconsin. 1952.

### Agrobacterium tumefaciens (Smith and Townsend) Conn

143 AMC. 1925. Received as Pseudomonas tumefaciens.

4452 R.E. Buchanan, Iowa State College. 1929. From raspberry.

4720 I.L. Baldwin, strain A 1, Univ. of Wisconsin. 1931.  
J. Agric. Res., 1930, 41, 507.

11095 N.R. Smith, strain BCG5Y, (blueberry), USDA. 1951.

11156, 11157 and 11158. W.C. Price, strains B61, B62, and B63,  
Univ. of Pittsburgh. 1952. Phytopathology, 1952, 42, 10.

### Alcaligenes faecalis Castellani and Chalmers

8750 H.J. Conn, strain 16, Agric. Expt. Sta., Geneva, N.Y.  
1942.

### Alcaligenes viscosus (Weldin and Levine) Weldin: See Alcaligenes viscolactis

### Alcaligenes viscolactis (Mez) Breed (Alcaligenes viscosus)

337 L.A. Rogers, USDA. 1925. Received as Lactobacillus viscosus. Fromropy milk.

9036 B.W. Hammer, Iowa State College. 1943.

### Alcaligenes sp.

10153 FDA, strain PCI 3. 1946. Bodenheimer's bacillus. Assay  
of streptomycin and streptothricin.

### Arizona Group: See Paracolobactrum arizonae

### Arthrobacter citreus Sacks

11624 WRRL, 1953. Assay of subtilin.

### Arthrobacter globiformis (Conn) Conn and Dimmick

8010 (Bacterium globiforme) N.R. Smith, strain 168, USDA.  
1941. H.J. Conn. J. Bact., 1947, 54, 291.

### Arthrobacter simplex (Jensen) Lochhead

6946 (Corynebacterium simplex) NCTC, strain 4215. 1938.  
H.L. Jensen, New S. Wales. From rice soil. Proc. Linn.  
Soc. N.S.W. 1933, 58, 181.

### Arthrobacter tumescens (Jensen) Conn and Dimmick

6947 (Corynebacterium tumescens) NCTC, strain 4216. 1938.  
H.L. Jensen. From garden soil. Proc. Linn. Soc. N.S.W.  
1933, 58, 181.

### Arthrobacter ureafaciens (Krebs and Eggleston) Clark

7562 (Corynebacterium creatinovorans) R. Dubos. strain NC,  
through M.X. Sullivan, Georgetown Univ. 1941. Internat.  
Bull. Bact. Nomen. and Taxon., 1955, 5(3), 111.

## BACTERIA

### Azotobacter agilis Beijerinck

- 7494 N.R. Smith, strain 55, USDA. 1939. D. Burk strain K-1; H.W. Heuszer; A.J. Kluyver. J. Agric. Res., 1942, 65, 173.  
9040 R.L. Starkey, strain 9, Agric. Expt. Sta., New Brunswick, N.J. 1943.  
9042 R.L. Starkey, strain 1. 1943.  
9570 N.R. Smith, strain 36, USDA. 1944. R.L. Starkey; S. Winogradsky, Azomonas strain 1.

### Azotobacter beijerinckii Lipman: See Azotobacter chroococcum

### Azotobacter chroococcum Beijerinck

- 480 N.R. Smith, strain 12, USDA. 1925.  
4412 E.B. Fred, strain X-50, Univ. of Wisconsin. 1929. N.R. Smith strain 7.  
7486, 7488, 7490 and 7491 N.R. Smith, strains 47, 49, 51 and 52, USDA. 1939. D. Burk strains B-3, B-5, B-7 and B-8; O.P. Maximova. J. Agric. Res., 1942, 65, 173.  
7493, 7497, 7498 and 7499 N.R. Smith, strains 54, 45, 44 and 43, USDA. 1939. D. Burk strains B-10, C-4, C-5 and C-6; J. Agric. Res., 1942, 65, 173.  
9043, 9044 and 9045 R.L. Starkey, strains 43, 22 and 46, Agric. Expt. Sta., New Brunswick, N.J. 1943.  
9048, 9049 and 9051 R.L. Starkey, strains 23, 16 and 20. 1943.  
9335 W.W. Umbreit, strain 77-50, Univ. of Wisconsin. 1944.  
9544 N.R. Smith, strain 13, USDA. 1944. R.A. Green.  
12981 (*Azotobacter beijerinckii*) D.B. Johnstone, Univ. of Vermont. 1957. J.P. Voets. Bact. Revs., 1954, 18, 195.

### Azotobacter indicus Starkey and De

- 9037, 9038 and 9039 R.L. Starkey, strains 10, 32 and 11, Agric. Expt. Sta., New Brunswick, N.J. 1943.  
9540 N.R. Smith, strain 57, USDA. 1939. D. Burk strain 10A; R.L. Starkey.

### Azotobacter insignis Derx

- 12523 V. Jensen, strain 139, Royal Vet. and Agric. Coll., Copenhagen, Denmark. 1956.

### Azotobacter macrocytogenes Jensen

- 12334 D.B. Johnstone, intermediate strain, Univ. of Vermont. 1955. H.L. Jensen. Acta Agric. Scand., 1955, 5, 280.  
12335\* D.B. Johnstone, original strain. 1955.  
12336 D.B. Johnstone, mutant strain. 1955.

### Azotobacter vinelandii

- 478 N.R. Smith, strain 16, USDA. 1925. J.G. Lipman.  
7484 N.R. Smith, strain 46, USDA. 1939. D. Burk strain B-1; O.P. Maximova.  
7487 and 7489 N.R. Smith, strains 48 and 50, USDA. 1939. D. Burk strains B-4 and B-6. O.P. Maximova. J. Agric. Res., 1942, 65, 173.  
7492 D. Burk, strain B-9, USDA. 1939. N.R. Smith strain 53. O.P. Maximova.  
7496 N.R. Smith, strain 42, USDA. J. Agric. Res., 1942, 65, 173.

## BACTERIA

### Azotobacter vinelandii (Continued)

- 9046 and 9047 R.L. Starkey, strains 37 and 5, Agric. Exptl. Sta.,  
New Brunswick, N.J. 1943.  
9104 P.W. Wilson, Univ. of Wisconsin. 1943. Indust. and  
Engineer. Chem., 1943, 35, 354.

### Azotomonas insolita Stapp

- 12412 A.W. Hofer, Cornell Univ., Geneva, N.Y. 1955. Bact.  
Revs., 1954, 18, 207.

### Azotomonas sp.

- 12210 NCIB, strain 8627. 1955.

### Bacillus alvei Cheshire and Cheyne

- 6344, 6348, 6349 and 10871 N.R. Smith, strains 662, 683, 684 and  
685, USDA. 1938.

### Bacillus aminovorans den Dooren de Jong

- 7046 N.R. Smith, strain 341, USDA. 1938. NCTC strain 2870.  
Zblt. Bakt. Abt. II, 1927, 71, 193.

### Bacillus anthracis Cohn emend. Koch

- 10 Hyg. Lab., Washington, D.C., strain 152. 1925. N.R.  
Smith strain 1007. J. Bact., 1931, 21, 161.  
240 and 241 E.O. Jordan, Univ. of Chicago. 1925. N.R. Smith  
strains 1008 and 1009. J. Bact., 1931, 21, 161.  
937 and 938 A. Eichorn, Lederle Labs., Pearl River, N.Y.,  
strains 1 and 2. 1926. N.R. Smith strains 1010 and 1011.  
4229 USDA, strain S.C. 14. 1928. Pasteur vaccine strain 1;  
N.R. Smith strain 1012. J. Bact., 1931, 21, 161.  
4728 J.S. Buckley, USDA, 1931. N.R. Smith strain 1013.  
6602, 6603 and 6604 Veterinary Corps, AMC, strains 1, Graves  
and Gen-Sal. 1938. N.R. Smith strains 1016, 1017 and 1018.  
6605 Veterinary Corps, AMC. 1938. N.R. Smith strain 1014  
(bovine).  
6606 and 6607 Veterinary Corps, AMC. 1938. N.R. Smith strains  
1015 and 1019.  
8705 Veterinary Corps, AMC, strain 46-PY-5. 1942.  
9660 H.W. Schoening, strain SDR-44 (bovine), USDA. 1944.  
11966 G.G. Wright, strain NP-A, Fort Detrick, Frederick, Md.  
1954. J. Exptl. Med., 1951, 93, 523.

### Bacillus atterrimus Lehmann and Neumann: See Bacillus subtilis var. atterrimus

### Bacillus brevis Migula emend. Ford

- 8185 R.J. Dubos, strain BG, Rockefeller Inst. through N.R.  
Smith, USDA. 1941. Original gramicidin strain. Production  
of gramicidin and tyrocidin.  
8186 R.J. Dubos, strain OKA, Rockefeller Inst. 1941.  
8246 N.R. Smith, strain 604, USDA. 1941. NCTC strain 2611;  
Ford strain 27B.  
9999 NCTC, strain 7096. 1946. Originally from R.L.M. Synge,  
Lister Inst., London, England.  
10027 N.R. Smith, strain 605, USDA. 1946.  
10068 WRRL. 1946.



## BACTERIA

### Bacillus brevis (Continued)

11031 N.R. Smith, strain 799, USDA. 1951.

### Bacillus cascainensis

12327 A. Castellani, Inst. de Med. Trop., Lisbon. 1955. Annales de l'Institut Pasteur, Paris, Oct., 1955.

### Bacillus cereus Frankland and Frankland

- 2 AMC, strain 800. 1925. Received as *Bacillus agri*. N. R. Smith strain 342.
- 246 E.O. Jordan, Univ. of Chicago. 1925. Received as *Bacillus lactimorbus*. N. R. Smith strain 733.
- 4342 (*Bacillus lacticola*) A. Stewart, Florida State College for Women. 1928. N. R. Smith strain 731.
- 6464, 6465, 6472 and 6629 N. R. Smith, strains 210, 244, 701 and 249, USDA. 1938.
- 7004 (*Bacillus albolactis*) F.S. Orcutt, Virginia Polytech. Inst., Blacksburg. 1938. N. R. Smith strain 721.
- 7039 (*Bacillus metiens*) N. R. Smith, strain 621, USDA. 1938. J. R. Porter, State Univ. of Iowa.
- 7064 N. R. Smith, strain 201, USDA. 1938.
- 7483 M. L. Stone, New York Univ. 1939.
- 9139 N. R. Smith, strain 232, USDA. 1943. W. W. Ford.
- 9592 W. A. Randall, FDA. 1944. Penicillin resistant.
- 9620 R. J. Williams, Univ. of Texas. 1944. N. R. Smith strain 1122.
- 9634 S. A. Waksman, strain O, Agric. Expt. Sta., New Brunswick, N. J. 1944. Received as *Bacillus mycoides*. For antibiotic assay.
- 9818 (*Bacillus lactis*) N. R. Smith, strain 879, USDA. 1945.
- 10702 W. A. Randall, strain 5, FDA. 1949. A. Dornbush. Ann. New York Acad. Sci., 1948, 51, 218.
- 10876 N. R. Smith, strain 1256, USDA. 1951. NRRL strain B-569. Production of penicillinase.
- 10987 N. R. Smith, strain 248, USDA. 1951.
- Bacillus cereus var. mycoides (Flügge) Smith, Gordon and Clark
- 6462 and 6463 (*Bacillus mycoides*) N. R. Smith, USDA, strains 273 and 306. 1938.
- 10206 N. R. Smith, strain 936, USDA. 1947.
- 11778 W. A. Randall, strain PCI 213, FDA. 1954. For achromycin, aureomycin and terramycin assay.

### Bacillus circulans Jordan and Ford

- 61 AMC, strain 732. 1925. Received as *Bacillus fusiformis*. N. R. Smith strain 727; W. W. Ford strain 10.
- 4513, 4515, 4516 and 4530 W. W. Ford, strains 26, 24, 7 and 28, Johns Hopkins Univ. 1929. N. R. Smith strains 726, 728, 313 and 746.
- 7049 N. R. Smith, strain 358, USDA. 1938.
- 8241 N. R. Smith, strain 716, USDA. 1941. Anna Russ-Munzer, Prague.
- 8384 N. R. Smith, strain 760, USDA. Soil Sci., 1940, 49, 185.
- 9966 W. A. Randall, strain PCI 221, FDA. 1946. Streptomycin assay.

## BACTERIA

### Bacillus circulans (Continued)

9995 N.R. Smith, strain 290, USDA. 1946. Received as Bacillus amylolyticus.

11032, 11033 and 11034 N.R. Smith, strains 294, 295 and 396, USDA. 1951.

### Bacillus coagulans Hammer

7050 N.R. Smith, strain 609, USDA. 1938. B.W. Hammer through J.R. Porter, State Univ. of Iowa. USDA Misc. Publ., 1946, 559, 74.

8058 (Bacillus thermoacidurans) NCA, strain 45P. 1941. N.R. Smith strain 770.

10545 (Bacillus dextrolacticus) N.R. Smith, strain 784, USDA. 1948. C.H. Werkman. Produces d-lactic acid.

11014 N.R. Smith, strain 27, USDA. 1951.

11369 Mme. P. Chaix, strain C, Faculté des Sciences de Lyon, France. 1952. Biochim. et Biophys. Acta, 1952, 8.

12245 S.H. Hutner, Haskins Lab., New York, N.Y., through H. Sobotka, Mt. Sinai Hospital, New York City, 1955. NCA strain 3084 (B. thermoacidurans). Assay of folic acid. Proc. Soc. Exptl. Biol. and Med., 1955, 89, 210.

### Bacillus firmus Werner

8247 N.R. Smith, strain 854, USDA. 1941. G. Bredemann, through J.R. Porter, State Univ. of Iowa. Zblt. Bakt. Abt. II, 1932, 87, 470.

### Bacillus freudenreichii (Miquel) Migula

7053 N.R. Smith, strain 671, USDA. 1938. T. Gibson strain 68. J. Bact., 1935, 29, 491.

Bacillus fusiformis Gottheil: See Bacillus sphaericus

Bacillus globigii Migula: See Bacillus subtilis var. niger

Bacillus graveolens Gottheil: See Bacillus megaterium

Bacillus larvae White

9545 E.C. Holst, strain 846, USDA. 1944. From foulbrood of honey bees.

### Bacillus laterosporus Laubach

64 AMC, strain 797. 1925. N.R. Smith strain 314.

4517 W.W. Ford, strain 29, Johns Hopkins Univ. 1929. N.R. Smith strain 347.

6456, 6457 and 9141 (Bacillus orpheus) N.R. Smith, strains 661, 681 and 682, USDA. 1938.

### Bacillus lentus Gibson

10840 and 10841 N.R. Smith, strains 670 and 1262, USDA. 1951. Gibson strains 165 and 238. Zblt. Bakt. Abt. II, 1935, 92, 368.

### Bacillus licheniformis (Weigmann) Chester emend. Gibson

6598 AMC. 1937. N.R. Smith strain 745.

6634 N.R. Smith, strain 304, USDA. 1938. M.H. Soule, Univ. of Michigan, 1936; W.W. Ford.

8187 and 8190 R.J. Dubos, Rockefeller Inst. 1941. N.R. Smith strains 778 and 776; NCTC strains 2120 and 2118. Compt. Rend. Sec. Biol., 1925, 92, 72.

8480 C. Lamanna, Oregon State College. 1942. Knaysi strain S8; N.R. Smith strain 1128.

## BACTERIA

### Bacillus licheniformis (Continued)

- 9259 N.R. Smith, strain 900, USDA. 1943. J.R. Porter, State Univ. of Iowa.
- 9789 G.A. Ledingham, National Research Council, Ottawa, Canada. 1945. N.R. Smith strain 978; NCTC strain 2586; W.W. Ford strain 1. Production of glycerol and 2, 3-butanediol. Science, 1945, 101, 245.
- 9800 NCTC, strain 6346, 1945. N.R. Smith strain 243. Brit. J. Exptl. Path., 1944, 25, 96.
- 9859 N.R. Smith, strain 329, USDA. 1945. Received as *Bacillus vulgatus*. NCTC strain 1097.
- 9945 N.R. Smith, strain 712, USDA. 1945. Produces d-glutamic acid. J. Biol. Chem., 1942, 145, 415.
- 9945a C.B. Thorne, strain CD-2, Fort Detrick, Frederick, Md. 1954. Produces glutamyl polypeptide. J. Bact., 1954, 68, 307.
- 10716 B.A. Johnson, strain Tracy I, Columbia Univ. 1949. N.R. Smith strain 1330. F.L. Meleney. Produces bacitracin.
- 11560 M. Damodaran, strain P-8, National Chem. Lab., Poona, India. 1953.
- 11945 and 11946 F.E. Clark, strains 1331 and 1333, USDA. 1954.

### Bacillus macerans Schardinger

- 843 (*Aerobacillus macerans*) Evelyn B. Tilden, NIH. 1942. N.R. Smith strain 1093. J. Bact., 1942, 43, 527.
- 7048 N.R. Smith, strain 649, USDA. 1938. Received as *Bacillus betanigrificans*.
- 7068 N.R. Smith, strain 278, USDA. 1938.
- 7069 and 8244 N.R. Smith, strains 277 and 888, USDA. 1942.
- 8509, 8510, 8513 and 8514 Evelyn B. Tilden, strains 18, 2037, 577 and 588, NIH. 1942. N.R. Smith strains 1095, 1096, 1097 and 1098. J. Bact., 1942, 43, 527.
- 8515, 8516 and 8517 Evelyn B. Tilden, strains 573, 585 and 583, NIH. 1942. N.R. Smith strains 1099, 1100 and 1101. J. Bact., 1942, 43, 527.
- 8518 Evelyn B. Tilden, NIH. 1942. Received as *Bacillus betanigrificans*. N.R. Smith strain 646. J. Bact., 1942, 43, 527.

### Bacillus megaterium de Bary

- 89 (*Bacillus petasites*) AMC, strain 735. 1925. N.R. Smith strain 343; W.W. Ford strain 13.
- 4531 (*Bacillus tumescens*) W.W. Ford, strain 23A, Johns Hopkins Univ. 1929. N.R. Smith strain 1102.
- 6458 and 6459 N.R. Smith, strains 240 and 269, USDA. 1938.
- 7051 and 7052 (*Bacillus danieus*) N.R. Smith, strains 245 and 246. USDA. 1938. Löhnis and Smith.
- 7056 (*Bacillus malabarensis*) N.R. Smith, strain 239, USDA. 1939. Pillai and Löhnis.
- 7481 T. Benedek, 25 E. Washington St., Chicago, Illinois. 1939. Received as *Bacillus endoparasiticus*. N.R. Smith strain 1103. Mycopathologia, 1938, 1, 26.
- 7703 (*Bacillus graveolens*) N.R. Smith, strain 615, USDA. 1940. J.R. Porter, State Univ. of Iowa; G. Bredemann.

# BACTERIA

## Bacillus megaterium (Continued)

- 8245 N.R. Smith, strain 234, USDA. 1941. AMNH strain 734.  
USDA Misc. Publ., 1946, No. 559.
- 9885 J.W. Foster, strain 4R6259, Merck and Co., Inc., Rahway,  
N.J. 1945. Strain Cornell 90. Streptomycin cup assay.
- 10778 NRRL, strain B-938. 1950. Production of vitamin B<sub>12</sub>.

Bacillus mesentericus (Flügge) Trevisan (American strains): See  
Bacillus pumilus

Bacillus mesentericus (Flügge) Trevisan (European strains): See  
Bacillus subtilis (USDA Misc. Publ., 1946, No. 559.)

Bacillus mycoides Flügge: See Bacillus cereus var. mycoides

Bacillus niger Migula: See Bacillus subtilis var. niger

Bacillus pasteurii (Miquel) Migula

- 6452 and 6453 N.R. Smith, strains 674 and 675, USDA. 1938.  
F. Löhnis, Leipzig.
- 11859 Frances F. Lombard, USDA. 1954. N.R. Smith strain 929.  
Production of urease. J. Bact., 1934, 28, 313; op. cit. 1954,  
68, 67.

Bacillus polymyxa (Prazmowski) Migula

- 842 LM. 1926. N.R. Smith strain 1105.
- 7047 (Bacillus asterosporus) N.R. Smith, strain 251, USDA.  
1938. Král Collection.
- 7070, 8519, 8521 and 8522 Evelyn B. Tilden, NIH. 1942. N. R.  
Smith strains 279, 812, 252 and 293.
- 8523, 8524, 8525 and 8526 Evelyn B. Tilden, NIH. 1942. N. R.  
Smith strains 354, 280, 813 and 297. J. Bact., 1942, 43, 527.
- 10401 P.G. Stansly, American Cyanamid Co., Stamford, Conn.  
1947. N.R. Smith strain 2010. Production of polymyxin.  
J. Bact., 1947, 54, 549.
- 12321 NRRL, strain B-510 RHG. 1955. Produces 2, 3-butylene  
glycol.

Bacillus pumilus Gottheil

- 1, 18, 70, 71, 72 and 98 AMC, strains 794, 740, 501, 734a, 734  
and 793. 1925. N.R. Smith strains 309, 724, 734, 735, 736  
and 345.
- 945 (Bacillus mesentericus) M. Levine, strain 2081, Iowa State  
College. 1926. N.R. Smith strain 738.
- 4510, 4520 and 4522 W.W. Ford, strains 27, 9 and 8, Johns Hopkins  
Univ. 1929. N.R. Smith strains 725, 739 and 316.
- 6631 and 6632 (Bacillus mesentericus) N.R. Smith, strains 236  
and 247, USDA. 1938.
- 7061 N.R. Smith, strain 272, USDA. 1938. Král Collection.
- 7065 N.R. Smith, strain 355. 1938. Elizabeth McCoy; G. Truffaut.

Bacillus sphaericus Neide

- 245 E.O. Jordan, Univ. of Chicago. 1925. Received as Bacillus  
lactimorbus. N.R. Smith strain 732.
- 4525 W.W. Ford, strain 25, Johns Hopkins Univ. 1929. N.R. Smith  
strain 348.
- 7054 and 7055 N.R. Smith, strains 339 and 350, USDA. 1941.  
Received as Bacillus fusiformis.



## BACTERIA

### Bacillus sphaericus (Continued)

- 7063 (Bacillus serositidis) N.R. Smith, strain 668, USDA. 1936. J.G. LaCorte, Brazil.  
 10208 N.R. Smith, strain 966, USDA. 1946. J.R. Porter.  
 12123 NCA, strain M-7. 1955. N.R. Smith strain T111.  
 12300 F.E. Clark, strain 866, USDA. 1955.

### Bacillus sphaericus var. rotans (Roberts) Smith, Gordon and Clark

- 4978 N.R. Smith, strain 633, USDA. 1944. J.L. Roberts. J. Bact., 1935, 29, 234.  
 12844 NCIB, strain 8867. 1956. J.L. Peel strain CO8.

### Bacillus stearothermophilus Donk

- 7953 C.P. Hegarty, Georgetown Univ. 1941. NCA strain 1518; N.R. Smith strain T17. Steam sterilization control.  
 7954 C.P. Hegarty. 1941. NCA strain 1503; N.R. Smith strain T19. J. Infect. Dis., 1926, 39, 89.  
 8005 M.W. Yale, strain BD53, New York State Agric. Expt. Sta., Geneva. 1941. N.R. Smith strain T281.  
 10149 N.R. Smith, strain 15, USDA. 1946. Received as Bacillus calidolactis.

### Bacillus subtilis Cohn emend. Prazmowski

- 82 (Bacillus panis) AMC, strain 796. 1925. N.R. Smith strain 315; W.W. Ford strain 5.  
 465 N.M. Harris, Ottawa, Canada. 1925. N.R. Smith strain 743. Science, 1925, 62, 57.  
 943 M. Levine, strain 2062, Iowa State College. 1926. N.R. Smith strain 737.  
 4344 A. Stewart, Florida State Coll. for Women. 1928. N.R. Smith strain 741.  
 4529 (Bacillus vulgatus) W.W. Ford, strain 3, Johns Hopkins Univ. 1929. N.R. Smith strain 1004.  
 4944 NCTC. 1934. N.R. Smith strain 1106.  
 6051\* H.J. Conn, strain Marburg, New York State Agric. Expt. Sta., Geneva. J. Infect. Dis., 1930, 46, 341.  
 6633 N.R. Smith, strain 231, USDA. 1943. PCI strain 219. Production of subtilin and assay of streptomycin and aureomycin. Arch. Biochem., 1944, 4, 297.  
 6984 S. Hermann, Prague. 1938. N.R. Smith strain 747.  
 7003 F.S. Orcutt, Virginia Polytech. Inst., Blacksburg. 1938. Received as Bacillus graveolens. N.R. Smith strain 730.  
 7058 and 7059 (Bacillus natto) N.R. Smith, strains 351 and 352, USDA. 1938. J. Hanzawa.  
 7067 (Bacillus vulgatus) N.R. Smith, strain 238, USDA. 1938. AMNH strain 725.  
 7480 T. Benedek, Chicago, Illinois. 1939. Received as Bacillus endoparasiticus. N.R. Smith strain 1107. Mycopathologia, 1938, 1, 26.  
 8188 R.J. Dubos, Rockefeller Inst. 1941. Received as Tyrophthrix minimus. N.R. Smith strain 773; NCTC strain 2122. Compt. Rend. Sec. Biol., 1925, 92, 72.  
 8189 R.J. Dubos. 1941. Received as Tyrophthrix scaber. N. R. Smith strain 774.

## BACTERIA

### Bacillus subtilis (Continued)

- 8472 and 8473 N.R. Smith, strains 763 and 762, USDA. 1942.  
R.P. Meyers, Sealtest Labs., Baltimore.
- 9466 W.A. Randall, strain PCI 220, FDA. 1944. NRRL strain B-558; N.R. Smith strain 1088. J. Bact., 1945, 49, 411.
- 9524 J.W. Foster, strain 3R9675, Merck and Co., Inc., Rahway, N.J. 1944. N.R. Smith strain 1109. J. Bact., 1944, 47, 43.
- 9799 NCTC, strain 6276. 1945. N.R. Smith strain 1125. Produces penicillinase. Brit. J. Exptl. Pathol., 1944, 25, 96.
- 9858 N.R. Smith, strain 237, USDA. 1945.
- 9860 and 9943 N.R. Smith, strains 330 and 979, USDA. 1945. NCTC strains 2590 and 2587.
- 10774 L.G. Colio, Wyeth Inst. of Applied Biochemistry, Philadelphia. Produces bacillomycin B. Proc. Soc. Exptl. Biol. and Med., 1948, 67, 539.
- 10783 NRRL, strain B-543. 1950.
- 11774 NCTC, strain 8236. 1954. Brit. Pharmacopeia, 1953, p. 796.
- 11838 AMC, strain 46-A-6. 1954. Viomycin assay.
- 12100 NCA, strain 1558. 1955.
- 12432 D.A. Harris, strain 56R188 (MB32), Merck and Co., Inc., Rahway, N.J. Assay of cathomycin and novobiocin. Appl. Microbiol., 1956, 4, 307.
- 12695 P. Lallouette, strain 51-52, Soc. d'Etudes et d'Applications Biochimiques. 1956.

### Bacillus subtilis var. aterrimus (Lehmann and Neumann) Smith et al.

- 4925 (Bacillus nigrificans) F.W. Fabian, Michigan State College. 1934. N.R. Smith strain 740. From pickle brine.
- 6460, 6461 and 7060 N.R. Smith, strains 259, 275 and 659, USDA. 1938.

### Bacillus subtilis var. niger (Migula) Smith et al.

- 6454 (Bacillus niger) N.R. Smith, strain 229, USDA. 1938.
- 6455 (Bacillus niger) N.R. Smith, strain 265, USDA. 1938. I. Hall strain 1509.
- 6537 (Bacillus niger) Elizabeth McCoy, Univ. of Wisconsin. 1938.
- 7972 (Bacillus niger) N.R. Smith, strain 650, USDA. 1941. NCTC strain 2736.
- 9372 (Bacillus globigii) N.R. Smith, strain 1221a, USDA. 1947. Hot air sterilization control.

### Bacillus thiaminolyticus Matsukawa and Misawa

- 11376 and 11377 K. Arima, Univ. of Tokyo, Japan. 1952. Produce thiaminase. Acta Scholae Medicinalis Universitatis Kioto, Japan, 1952, 30, 127.

### Bacillus thuringiensis Berliner

- 10792 E.A. Steinhaus, Univ. of California. 1950. N.R. Smith strain 996; Mattes strain. Zietschr. angew. Ent., 1915, 2, 29.

### Bacillus spp.

- 12016 NCA, strain 2184. 1955. Obligate thermophile from flat sours in canned peas.
- 12456 NCA, strain 9499. 1956. From canned pea soup.
- 12480 G.B. Garner, strain 684, Univ. of Missouri. 1956. From sheep rumen. Assay of nitrate.

## BACTERIA

### Bacterium agglutinabile Wilson

6868 NCTC, strain 2461. 1938. J. Hyg., 1927, 26, 213.

### Bacterium aminovorans (den Dooren de Jong)

6870 NCTC, strain 2872. 1938. Zblt. Bakt. Abt. II, 1927, 71, 193.

### Bacterium ammoniagenes Cooke and Keith: See Brevibacterium ammoniagenes

### Bacterium bibulum (McBeth and Scales) Holland

483 N.R. Smith, strain 122, USDA. 1925. Bureau of Plant Industry Bull. 1913, 266.

### Bacterium cadaveris

9760 N.S. Ferry, strain 04414, Parke, Davis and Co., Detroit, Mich. 1945. NCTC strain 6578. J. Biol. Chem., 1944, 156, 401. L-lysine decarboxylation.

### Bacterium cyclo-oxydans

12673 Helen Kroll, strain SC 2315, Squibb Inst. 1956.

### Bacterium denitrificans Chester

8453 NCTC, strain 1656. 1945. From soil.

### Bacterium enterocoliticum Schleifstein and Coleman

9610 Julia M. Coffey, strain 33114, New York State Dept. of Health. 1944. From glanders-like infection of face. New York State J. Med., 1939, 39, 1749.

### Bacterium globiforme Conn: See Arthrobacter globiformis

### Bacterium havaniensis Chester

4001 R.S. Breed, New York Agric. Expt. Sta., Geneva. 1927. Zblt. Bakt. Abt. II, 1903, 11, 404.

### Bacterium hebetisiccus Steinhaus

8364 E.A. Steinhaus, NIH. 1942. From "walking stick" (*Diapheromera femorata*). J. Bact., 1941, 42, 762.

### Bacterium imperiale Steinhaus: See Brevibacterium imperiale

### Bacterium incertum Steinhaus: See Brevibacterium incertum

### Bacterium linens Weigmann: See Brevibacterium linens

### Bacterium liquatum McBeth and Scales

485 USDA, strain 135. 1925. Zblt. Bakt. Abt. II, 1913, 39, 20.

### Bacterium mycoides (Grotenfelt) Migula

4004 R.S. Breed, New York Agric. Expt. Sta. 1927. From Pribram Collection. Zblt. Bakt. Abt. II, 1903, 11, 458.

### Bacterium orleanense Henneberg

9432 NRRL, strain B-55. 1947. Vinegar manufacture.

### Bacterium parvulum Conn: See Achromobacter parvulus

### Bacterium phosphoreum (Cohn) Molisch: See Photobacterium phosphoreum

### Bacterium stewartii Erw. Smith: See Xanthomonas stewartii

### Bacterium udum Kellerman et al.: See Cellulomonas uda

### Bacterium zopfii Kurth: See Kurthia zopfii

### Bacteroides distasonis Eggerth and Gagnon

8503 A.H. Eggerth, Long Island Coll. of Med. 1942. J. Bact., 1933, 25, 403.

### Bacteroides funduliformis (Hallé) Bergey et al.: See Sphaerophorus necrophorus

### Bacteroides limosus Eggerth: See Eubacterium limosum

### Bacteroides ovatus Eggerth and Gagnon

8483 A.H. Eggerth, Long Island Coll. of Med. 1954.

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- Bacteroides symbiosus Stevens  
12829 R.E. Reeves, Louisiana State Univ. 1957. Derived from Shaffer strain 2. Used in cultivation of *Entamoeba histolytica*.
- Bacteroides thetaiotaomicron (Distaso) Kelly  
8492 A.H. Eggerth, Long Island Coll. of Med. 1954.
- Bacteroides tumidus Eggerth and Gagnon  
8496 A.H. Eggerth, Long Island Coll. of Med. 1942. J. Bact., 1933, 25, 405.
- Bacteroides varius Eggerth and Gagnon: See *Sphaerophorus varius*
- Bacteroides vulgatus Eggerth and Gagnon  
8482 A.H. Eggerth, Long Island Coll. of Med. 1954.
- Bacteroides sp.  
9817 L.L. Dienes strain 132. See *Sphaerophorus freundii*.
- Ballerup group: See *Escherichia freundii*
- Beggiatoa alba (Vaucher) Trevisan  
11028 and 11029 E.G. Pringsheim, strains A and D, Univ. of Cambridge, England. 1951.
- Betabacterium vermiforme (Ward) Mayer  
11540 NRRL, strain B-1127 M. 1953. H.D. Mayer via A.J. Kluyver. Bacterial component of ginger beer plant (Tibi-Kon'sortium). Inaug. Diss. Univ. Utrecht. 1938.
- 13133 NRRL, strain B-1139. 1958. Dextran-producer.
- Bordetella bronchiseptica (Ferry) Moreno-López (*Brucella bronchiseptica*)  
19 AMC. 1925.
- 780 E.M. Houghton, strain 0336 (canine), Parke, Davis and Co., Detroit, Mich. 1926. N.S. Ferry.
- 785 E.M. Houghton, strain 01467 (murine), Parke, Davis and Co. 1926. H.P. Hoskins.
- 786 F. Stimpert, strain 01468 (human), Parke, Davis and Co. 1926. N.S. Ferry.
- 4617 K. B. Raper, strain B-140, NRRL. 1948. W.A. Hagan. PCI strain 1701. Assay of polymyxin.
- 10580 F. Stimpert, strain 01327 (canine), Parke, Davis and Co. 1949. N.S. Ferry.
- 12714 FDA, PCI strain 1701/O. 1957. Resistant to oxytetracycline.
- Bordetella parapertussis (Eldering and Kendrick) Moreno-López  
9305 (*Hemophilus parapertussis*) E.W. Flosdorf, strain 517, Univ. of Pennsylvania. 1944.
- Bordetella pertussis (Holland) Moreno-López (*Hemophilus pertussis*)  
190 Pearl L. Kendrick, Univ. of Michigan. Rough strain. 1953. Eli Lilly strain 2205.
- 6627 R.S. Muckenfuss, strain M-37, N.Y. Dept. of Health. 1938.
- 8467 J.A. Toomey, strain F, City Hosp., Cleveland, Ohio. 1942.
- 8478 Julia M. Coffey, strain 40103, New York State Dept. of Health. 1958.
- 9306 E.W. Flosdorf, strain 589, Univ. of Pennsylvania. 1944.
- 9340 Margaret Pittman, strain 5, NIH. 1956. Pearl L. Kendrick strain 17921.
- 9797 Margaret Pittman, strain 18323, NIH. 1956.
- 9832 Margaret Pittman, strain 16945, NIH. 1957. Strain 11330; AMC strain 36-C-2.



## BACTERIA

### Bordetella pertussis (Continued)

- 10380 Grace Eldering, strain 10-536, Michigan Dept. of Health. 1956. Production of pertussis vaccine.
- 11615 Pearl L. Kendrick, strain S25, Univ. of Michigan. 1953. Parke, Davis and Co. strain O 1646. Rough strain.
- 12741, 12742 and 12743 Grace Eldering, strains 5373, 5374 and 5375, Michigan Dept. of Health. 1957. Else K. Andersen strains 2592, 3747 and 3865. Acta Path. et Microbiol. Scand., 1953, 33, 202; J. Bact., 1957, 74, 133.

Additional strains available upon request.

### Brevibacterium acetylicum (Levine and Soppeland) Breed (Flavobacterium acetylicum)

- 953 M. Levine, strain 1005, Iowa State College. 1926. From creamery waste.
- 954 M. Levine, strain 1006 (2). 1926.

### Brevibacterium ammoniagenes (Cooke and Keith) Breed

- 6871 and 6872 (Bacterium ammoniagenes) NCTC, strains 2398 and 2399. 1948. J. Bact., 1927, 13, 315.

### Brevibacterium helvolum (Zimmermann) Lochhead

- 11822 (Corynebacterium helvolum) C.B. van Niel, strain D.1.1. YDC, Hopkins Marine Station. 1954. Internat. Bull. Bact. Nomen. and Taxon. 1955, 5, 115.

### Brevibacterium imperiale (Steinhaus) Breed

- 8365 (Bacterium imperiale) E.A. Steinhaus, strain 72, Rocky Mountain Lab., NIH, Hamilton, Montana. 1942. From Eacles imperialis. J. Bact., 1941, 42, 777.

### Brevibacterium incertum (Steinhaus) Breed

- 8363 (Bacterium incertum) E.A. Steinhaus, Rocky Mountain Lab., NIH, Hamilton, Montana. 1943. From Tibicen linnei.

### Brevibacterium linens (Weigmann) Breed (Bacterium linens)

- 8377 L.A. Rogers, USDA. 1942. From Brie cheese.
- 9172 R.S. Breed, strain 56b, New York Agric. Expt. Sta., Geneva. 1943. H. Weigmann. From Harzerkase cheese.
- 9174 R.S. Breed, strain 56i. 1943. H. Weigmann. From Romadur cheese.
- 9175 R.S. Breed, strain KC. 1943. From Camembert cheese.

### Brevibacterium lipolyticum (Huss) Breed

- 11367 (Achromobacter lipolyticum) M.M. Rayman, strain 107. Chicago Quartermaster Depot. 1952. C.M. Wilson. Food Res., 1952, 17, 326.

### Brevibacterium vitarumen (Knutsen) Breed

- 10234 (Flavobacterium vitarumen) M.A. Farrell, Pennsylvania State Coll. 1947.

### Brucella abortus (Schmidt and Weis) Meyer and Shaw

- 4315 and 4316 I.F. Huddleson, strains William and Hall (human). Michigan State Coll. 1928. Mich. Agric. Expt. Sta., Tech. Bull. No. 199, 1929.
- 4319, 4320 and 4321 I.F. Huddleson, strains 200, 400 and 1 (bovine). 1928.
- 6610, 6611 and 6613 Veterinary Corps, AMC, strains 1001, 629 and 18. 1938.

## BACTERIA

### Brucella abortus (Continued)

- 9014 Julia M. Colley, strain 322 (human), New York State Dept. of Health. 1943.  
9153 O. Felsenfeld, Chicago State Hospital. 1943.  
9539 USDA, strain 2308/2665. 1944. Opsono-cytophagic tests.  
10750 I.F. Huddleson, strain 1336, Michigan State Coll. 1949.  
11192 USDA, strain 1119-3 serial No. 4. 1952. Production of antigen.

### Brucella bronchiseptica (Ferry) Topley and Wilson: See Bordetella bronchiseptica

### Brucella melitensis (Hughes) Meyer and Shaw

- 739 C. TenBroeck, strain Wagon, Union Medical College, Peking, China. 1926.  
802 USDA, strain 77012. 1926. J. Agric. Res., 1924, 29, 586.  
983 J.H.H. Pirie, South African Inst. for Med. Res., Johannesburg. 1927.  
4306 and 4310 I.F. Huddleson, Michigan State Coll. 1928. Alice C. Evans strains 522 and 509 (caprine). Hyg. Lab. Bull. No. 143, 1925.  
4309 I.F. Huddleson. 1928. Evans strain 462 (human).  
6616 Veterinary Corps, AMC, strain 68. 1938.  
8235 Alice C. Evans, strain 101, NIH. 1941.  
8360 and 8371 I.F. Huddleson, strains 2461 and 85, Michigan State Coll. 1942.  
9288 O. Felsenfeld, Chicago Medical School. 1944.  
10001 USDA, strain K-1957. 1946.

### Brucella suis Huddleson

- 4312, 4313 and 4314 I.F. Huddleson, strains 2012, 2a and Iowa 5, Michigan State Coll. 1928. Mich. Agric. Expt. Sta. Tech. Bull. No. 199, 1929.  
6597 Veterinary Corps, AMC. 1938.  
7978 and 9843 USDA, strains 4150-S and King-8. 1945.

### Butyribacterium rettgeri Barker and Haas

- 10825 H.A. Barker, strain 32 of group A2, Univ. of Calif., Berkeley. 1950.

### Caryophanon latum Peshkoff

- 11017 E.G. Pringsheim, Univ. of Cambridge, England. 1951.  
12871 E.G. Pringsheim, Botanische Anstalten, Göttingen, Germany. 1957.

### Caulobacter vibrioides Henriot and Johnson emend. Bowers et al.

- 11764 R.H. Weaver, Univ. of Kentucky. 1954.

### Cellulomonas blazotea (Kellerman et al.) Bergey et al.

- 486 N.R. Smith, strain 127, USDA. 1925.

### Cellulomonas fimi (McBeth and Scales) Bergey et al.

- 484 (Corynebacterium fimi) Lab. of Soil Bacteriology, USDA, strain 133. 1925. From soil. Bureau Plant Industry Bull., 1913, No. 266.  
8185 (Corynebacterium fimi) L.D. Bushnell, Kansas State Coll. 1941. Utilizes petroleum. Trans. Kansas Acad. Sci., 1941, 44, 39.

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Cellulomonas flavigena (Kellerman and McBeth) Bergey et al.

482 N.R. Smith, strain 134, USDA. 1925. Zblt. Bakt. Abt. II, 1912, 34, 488.

Cellulomonas gelida (Kellerman et al.) Bergey et al.

488 N.R. Smith, strain 126, USDA. 1925.

Cellulomonas rossica (Kellerman and McBeth) Bergey et al.

9717 N.R. Smith, strain 128, USDA. 1945.

Cellulomonas uda (Kellerman et al.) Bergey et al.

491 (Bacterium udum) Lab. Soil Bacteriology, USDA, strain 136. 1925. From compost.

Cellvibrio fulvus Stapp and Bortels

12120 NCIB, strain 8634. 1954.

Cellvibrio vulgaris Stapp and Bortels

12209 NCIB, strain 8633. 1954.

Chromobacterium amethystinum (Chester) Holland

6915 A.J. Kluyver, strain L91, Delft, Holland. 1961. NCTC strain 4737, Cruess Callaghan strain 16. Sci. Proc. Roy. Dublin Soc., 1935, 21, 213.

Chromobacterium lividum (Voges) Holland

12473 P.H.A. Sneath, strain HB, Natl. Inst. Med. Res., London. 1956. Proposed as type culture.

Chromobacterium violaceum (Schroeter) Bergonzini

553 L.F. Rettger, Yale Univ. 1925. NCTC strain 8685.

6357 Sara E. Branham, NIH. 1938. Pathogenic when isolated. NCTC strain 8684.

12472 P.H.A. Sneath, strain MK, Natl. Inst. Med. Res., London. 1956. Proposed as type culture.

12540 and 12541 W.L. Sippel, strains Sealy (NCTC 9695) and Porter Coastal Plain Expt. Sta., Tifton Ga. 1956. Amer. Vet. Med. Assoc. Jr., 1954, 124, 467.

12542 W.L. Sippel, strain Reeves (NCTC 9372). 1956. Bovine strain.

Clostridium acetobutylicum McCoy et al.

824 E. R. Weyer, Yale Univ. 1926. Received as Granulobacter pectinovorum. Strain W of McCoy and McClung. Produces butyl alcohol and acetone. J. Infect. Dis., 1935, 56, 333.

862 (Clostridium acetogenum) A.J. Kluyver, strain E.VI.3.1.2., Lab. voor Microbiol., Delft, Netherlands. 1926. Strain D of McCoy and McClung.

3625 I.C. Hall, strain 462, Univ. of Colorado. 1927. Strain H of McCoy and McClung.

4259 NCTC, strain 619. 1928. Strain T of McCoy and McClung. J. Infect. Dis., 1935, 56, 333.

8529 C.H. Castell, Ontario Agric. Coll., Guelph, Canada. 1942. Elizabeth McCoy's strain 48.

10132 NRRL, strain B-594. 1946. Produces acetone, butyl alcohol and ethyl alcohol.

Clostridium aerofoetidum (Weinberg and Séguin) Bergey et al.

4894 (Bacillus aerofoetidus) NCTC, strain 505. 1933. Also called strain 208. Compt. Rend. Sec. Biol., 1916, 79, 116.



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### Clostridium bifermentans (Weinberg and Séguin) Bergey et al.

- 638 I.C. Hall, strain 76, Univ. of Colorado. 1926. Received as *Clostridium centrosporogenes*. J. Bact., 1936, 31, 560.  
9714 and 9715 G.B. Reed, strains 211 and 213, Queen's Univ., Kingston, Ontario, Canada. 1945. Received as *Clostridium sordelli*.

### Clostridium botulinum (van Ermengem) Holland

#### Type A

- 441 K.F. Meyer, strain 38a, Univ. of California, San Francisco. 1925. From chicken crop.  
687 F.G. Reddish, strain 10a, USDA. 1926. Boise strain.  
3502 I.C. Hall, strain 174, Univ. of Colorado. 1940.  
7948 NCA, strain 62A. 1941. Strongly toxigenic.

#### Type B

- 439 K.F. Meyer, strain 34B, Univ. of California. 1925.  
7949 NCA, strain 213B. 1941. Strongly toxigenic.

#### Type C

- 462 R. Graham, Univ. of Illinois. 1925.  
6060 W.G. Workman, strain 526-A7, NIH. 1937. Type C alpha.  
11772 Janet B. Gunnison, Univ. of California, San Francisco. 1954. Type C beta.

#### Type D

- 9633 K.F. Meyer, Univ. of California, San Francisco. 1944. Received as *Clostridium parabotulinum bovis*. A. Theiler and E.M. Robinson. From lamziekte material in South Africa.

#### Type E

- 9564 and 9565 Elizabeth L. Hazen, strains 36208 and 35396, New York Dept. of Health, N.Y. City. 1944.

### Clostridium butyricum Prazmowski

- 859 A.J. Kluyver, Lab. voor Microbiol., Delft, Netherlands, strain E.VI. 3.2.1. 1926. Received as *Clostridium pectinovorum*. Ref. H.J.L. Donker: Beidrage tot de Kennis der Boterzuur, Butylalcohol-en Acetonigistingen, Delft, 1926.  
860 C.H. Castell, Ontario Agric. Coll., Guelph, Canada. 1942. Received as *Clostridium saccharobutyricum*. LM strain 10.  
6014 and 6015 Elizabeth McCoy, strains 79 and 75, Univ. of Wisconsin. 1935. Král Collection.  
8260 C.P. Hegarty, Georgetown Univ. 1941. Univ. of Wisconsin strain 39.

### Clostridium capitovale (Snyder and Hall) Snyder

- 9687 F.E. Clark, strain 8977-2, USDA. 1945.

### Clostridium carnis (Klein) Spray

- 9716 G.B. Reed, strain 6593, Queen's Univ., Kingston, Ontario, Canada. 1945.  
10546 D. Sompolinsky, strain 766, State Vet. Serum Lab., Copenhagen, Denmark. 1949. Skand. Vet. Tidsk. Bakt., Patol., 1948, p. 506.

### Clostridium (Fusiforme) (Ashung et al.) Holland (Clostridium) (appal)

- 3516 I.C. Hall, strain 6, Univ. of Colorado. 1928. J. Infect. Dis., 1922, 30, 445.

## BACTERIA

### Clostridium chauvoei (Continued)

- 8083 I.C. Hall, strain 13114, Univ. of Colorado. 1941. Formerly strain 534. From Lister Inst., London, via J.P. Scott, Manhattan, Kansas.
- 10092 and 10093 C.D. Stein, strains 2585 and 2585A, USDA. From bovine blackleg.
- 11956, 11957 and 11958 L. D. Smith, strains 20, 1066 and 5730, Montana State Coll. 1954. From sheep blackleg.

### Clostridium cylindrosporum Barker and Beck

- 7905 H.A. Barker, strain H.C. 1, Univ. of California, Berkeley. 1941. J. Biol. Chem., 1941, 141, 3.

### Clostridium difficile (Hall and O'Toole) Prévot

- 9689 F.E. Clark, strain 90556-M6S, USDA. 1945.

### Clostridium fallax (Weinberg and Séguin) Bergey et al.

- 7795 I.C. Hall, strain 254, Univ. of Colorado. 1940.

### Clostridium felsineum (Carbone and Tombolato) Bergey et al.

- 13160 F.J. Simpson, strain A7, National Research Council, Canada. 1958.

### Clostridium fesi Trevisan: See Clostridium chauvoei

### Clostridium flabelliferum Sturges and Reddish

- 692 F.G. Reddish, strain 14, USDA. 1926. J. Bact., 1926, 11, 189.

### Clostridium haemolyticum (Hall) Hauduroy et al.

- 9650 and 9652 Helen Plummer, strains 29866 (Folsom) and 33333, Connaught Labs., Univ. of Toronto, Canada. 1944. L.R. Vawter.

### Clostridium histolyticum (Weinberg and Séguin) Bergey et al.

- 6282 Ida A. Bengtson, strain 22, NIH. 1938.
- 8034 AMC, strain 47-Q-3. 1952. R.S. Spray strain 22. Good collagenase activity.

### Clostridium kluyveri Barker and Taha

- 12489 H.A. Barker, Univ. of California, Berkeley. 1956.

### Clostridium lactoacetophilum Bhat and Barker

- 11914 H.A. Barker, Univ. of California, Berkeley. 1954. J. Bact., 1947, 54, 381.

### Clostridium lentoputrescens Hartsell and Rettger

- 4191 W.S. Sturges, strain IV, Cudahy Packing Co., Omaha, Nebraska. 1936. Received as Clostridium putrefaciens. J. Bact., 1927, 14, 175.
- 4996 I.C. Hall, strain 220, Univ. of Colorado. 1935.
- 6391 NCTC, strain 260. 1938.

### Clostridium multifementans Bergey et al.

- 3538 I.C. Hall, strain 502, Univ. of Colorado. 1925. J. Infect. Dis., 1924, 35, 502.

### Clostridium nigrificans Werkman and Weaver

- 7946 NCA, strain 3750. 1941.

### Clostridium novyi (Migula) Bergey et al.

- 898 and 3540 I.C. Hall, strains 104 and 15197, Univ. of Colorado. 1927 and 1943, respectively.
- 7656 and 7658 I.C. Hall, strains 153 and 1033A. 1939.
- 7659 I.C. Hall, strain 1323. 1939.

## BACTERIA

### Clostridium novyi (Continued)

8680, 8681, 8682 and 8683 Margaret Yarblett, strains H, tPxQ.  
Guinea pig and A, Mellon Inst. of Research, Pittsburgh, Pa.  
1942.

9076 I.C. Hall, strain 15200, Columbia-Presbyterian Med.  
Center. 1943.

9690 F.E. Clark, strain 7304, USDA. 1945.

### Clostridium paraputrificum (Beinstock) Snyder

9156 and 9157 I.C. Hall, strains 491 and 1538, Columbia-  
Presbyterian Med. Center. 1943. J. Bact., 1934, 28, 181.

### Clostridium parasporogenes (Bulloch et al.) Bergey et al.

693 F.G. Reddish, strain 15, USDA. 1926. NCTC strain 276.

### Clostridium pasteurianum Winogradsky

6013 Elizabeth McCoy, strain 5, Univ. of Wisconsin. 1935.  
S. Winogradsky.

7040 and 7041 C.H. Spiegelberg, strains 57 (rough) and 31 (smooth),  
Honolulu, Hawaii. 1938.

### Clostridium perfringens (Veillon and Zuber) Holland

846 J.C. Torrey, Cornell Univ. Med. School, New York City.  
1926. J. Infect. Dis., 1925, 37, 161.

3624 I.C. Hall, Univ. of Colorado. 1934. A.J. Wilsdon's type A,  
strain 26.

3626 I.C. Hall. 1938. A.J. Wilsdon's type B, strain 34.

3627 I.C. Hall. 1938. A.J. Wilsdon's type B, strain 37.

3628 I.C. Hall. 1938. A.J. Wilsdon's type C, strain 51.

3629 I.C. Hall. 1938. A.J. Wilsdon's type D, strain 21.

3630 I.C. Hall, strain 6510. 1941. A.J. Wilsdon's type D,  
strain RI.

3631 I.C. Hall. 1938. A.J. Wilsdon's type D.

8009 Muriel Robertson, strain SR 12. 1941. NCTC strain 6784.  
Highly toxigenic.

9081 I.C. Hall, strain 13942, Columbia-Presbyterian Med. Center.  
1943.

9856 NCTC, strain 6719. 1945.

10368 G.S. Schilling, strain 2279, Pitman-Moore Co., Indianapolis,  
Indiana. 1948.

10543 M.J. Boyd, strain BP6K, Univ. of Cincinnati. Through NIH.  
1948.

10873 NCTC, strain 6785. 1951.

### Clostridium propionicum Cardon and Barker

12135\* H.A. Barker, Univ. of California, Berkeley. 1955. J. Bact.,  
1946, 52, 629.

### Clostridium putrefaciens (McBryde) Sturges and Drake

6042 W.S. Sturges, strain 24, Cudahy Packing Co., Omaha,  
Nebraska. 1936.

### Clostridium roseum McCoy and McClung

6012 Elizabeth McCoy, strain 43, Univ. of Wisconsin. 1935.  
Arch. Mikrobiol., 1935, 6, 239.

### Clostridium septicum (Macé) Ford

461 I.C. Hall, strain 16, Cornell Univ. 1925. J. Infect. Dis.,  
1922, 30, 445.



## BACTERIA

### Clostridium septicum (Continued)

- 680 F.G. Reddish, strain 1, USDA. 1926. NCTC strain 284.  
6008 and 6009 I.C. Hall, strains 2398 and 8801, Univ. of Colorado. 1935.  
8053 and 8054 F. Breed, strains 256 and 257, Norden Labs., Lincoln, Nebraska. 1941.  
8065 Fort Dodge Serum Co., strain 5400. 1941. Veterinary Dept., Iowa State College.  
11424 W.A. Altemeier, strain VSB, Univ. of Cincinnati. 1953.  
12464 NCTC, strain 547. 1956. Pasteur III. Muriel Robertson.

### Clostridium sphenoides (Bulloch et al.) Bergey et al.

- 3560 I.C. Hall, strain 146, Univ. of Colorado. 1927. J. Infect. Dis., 1922, 30, 445.

### Clostridium sporogenes (Metchnikoff) Bergey et al.

- 319 I.C. Hall, Univ. of Colorado. 1943. Biochem. J. 1938, 32, 949. From AMNH strain 521.  
3584 I.C. Hall, strain 388. 1926.  
7955 NCA, "Putrefactive anaerobe" 3679. 1941. Food Research, 1946, 11, 405.  
8074 I.C. Hall, strain 11797. 1941.  
8075 I.C. Hall, strain 12622. 1941.  
10000 NCTC, strain 533. 1946. Strain Belette.  
11437 Harriette D. Vera, Baltimore Biological Labs. 1953. Heat resistant strain.

### Clostridium sticklandii Stadtman and McClung

- 12662\* Thressa C. Stadtman, NIH. 1956.

### Clostridium tetani (Flügge) Holland

- 449, 453 and 454 C. TenBroeck, Types III, V and VI. Peking, China. 1925.  
8033 Ida A. Bengtson, strain Tulloch, NIH. 1941. Type II.  
9441 AMC, strain 47-S-3. 1947. Highly toxigenic.  
10709 AMC, strain 47-S-2. 1949.  
10779 Julia M. Coffey, strain 43415, New York State Dept. of Health. 1950. J. Immunol., 1945, 50, 377.

### Clostridium tetanomorphum (Bulloch et al.) Bergey et al.

- 3606 I.C. Hall, strain 149, Univ. of Colorado. 1928. J. Infect. Dis., 1922, 30, 445.

### Clostridium thermoaceticum Fontaine et al.

- 11821 H.A. Barker, Univ. of California, Berkeley. 1954. J. Bact., 1942, 43, 705.

### Clostridium thermosaccharolyticum McClung

- 7956 NCA, strain 3814 "Thermophilic anaerobe". 1941.

### Clostridium tyrosinogenes (Hall) Bergey et al.

- 690 F.G. Reddish, strain 12, USDA. 1926. I.C. Hall strain 106.

### Coccobacillus acidurici Ulpiani

- 916 E.E. Ecker, Western Reserve Univ., Cleveland, Ohio. 1926. J. Infect. Dis., 1924, 34, 592.

### Corynebacterium acnes (Gilchrist) Ebersson

- 6919, 6921, 6922 and 6923 NCTC, strains 737, 4311, 556 and 5235. 1938.

## BACTERIA

### Corynebacterium acnes (Continued)

- 11482 R.E. Hungate, strain B 330 B, State College of Washington. 1953. Bact. Revs., 1950, 14, 3.  
11827 H. Seeliger, strain Gerath, Hygiene-Institut der Universität Bonn, Venusberg, Germany. 1954. Prof. Lentze, Cologne.  
11828 H. Seeliger, strain 417/52. 1954. Received as *Corynebacterium liquefaciens*. From subcutaneous abscess.

### Corynebacterium bovis Bergey et al.

- 7715 Alice C. Evans, NIH. 1940.

### Corynebacterium creatinovorans: See *Arthrobacter ureafaciens*

### Corynebacterium diphtheriae (Flügge) Lehmann and Neumann

- 296 J.H. Mueller, strain Park 8, Harvard Univ. 1941. Connaught Labs., Toronto, Canada.  
9015 (*Corynebacterium ulcerans*) Julia M. Coffey, strain 37142, New York State Dept. of Health. 1943. From throat.  
9343 AMC, strain 53-A-1. 1947.  
9456 Julia M. Coffey, strain 3203, New York State Dept. of Health. 1948. J. Infect. Dis., 1934, 55, 123. Toxin production.  
11913 Julia M. Coffey, strain 48255. 1954. Avirulent.

### Type *gravis*

- 8028 H.E. Morton, strain 12, Univ. of Pennsylvania. 1941.  
9059 and 9060 C.A. Perry, strains 40884 and 134, Dept. of Health, Baltimore, Md. 1943.  
9674 AMC, strain 53-A-7. 1945.  
11049 O. Felsenfeld, strain 19, Hektoen Inst. for Medical Research, Chicago, Ill. 1951.

### Type *intermedius*

- 8032 Difco Laboratories, strain RD 121, Detroit, Mich. 1941. M. Frobisher.  
9675 AMC, strain 53-A-8. 1945.  
11050 O. Felsenfeld, strain D14, Hektoen Inst., Chicago. 1951.

### Type *mitis*

- 6928 NCTC, strain 3990. 1938. Univ. of Leeds strain 911.  
8024 H.E. Morton, strain 7, Univ. of Pennsylvania. 1941. Natl. Drug Co.  
8026 H.E. Morton, strain 9. 1941. Olga R. Povitsky, N.Y. City Board of Health.  
9061 C.A. Perry, strain 20, Dept. of Health, Baltimore, Md. 1943.  
9673 AMC, strain 53-A-11. 1945.  
11051 O. Felsenfeld, strain D11, Hektoen Inst. Med. Res., Chicago, Ill. 1951.

### Corynebacterium enzymicum (Mellon) Ebersson

- 8155 and 8156 L.H. Schwarz, strains C-1 and C-1-a, Brooklyn College, Brooklyn, N.Y. 1941.

### Corynebacterium equi Magnusson

- 6939 NCTC, strain 1621. 1938. H. Magnusson, Malmö, Sweden. Isolated from lung abscess in foal.  
7698 and 7699 H.W. Schoening, strains S-11-L (No. 88A) and S-26-L (No. 89A), USDA. 1940.  
10146 AMC, strain 87A-113. 1946. Isolated from lung of foal.

## BACTERIA

### Corynebacterium fascians (Tilford) Dowson

- 12974\* W.H. Burkholder, strain CF17, Cornell Univ. 1957. P. E. Tilford, Ohio Expt. Sta. Trans. Brit. Mycol. Soc., 38, 49.  
 12975 W.H. Burkholder, strain CF19, Cornell Univ. 1957. Trans. Brit. Mycol. Soc., 38, 49.  
 13000 M.P. Starr, strain C.F. 107 (505), Univ. of Calif. 1957. S.E. Jacobs, Imperial College, London. Isolated from sweet pea.

### Corynebacterium fimi (McBeth and Scales) Jensen: See Cellulomonas fimi

### Corynebacterium flaccumfaciens (Hedges) Dowson (Phytomonas flaccumfaciens)

- 6887 NCTC, strain 4758. 1938. W.J. Dowson, Cambridge Univ. From bean blight.  
 7392 P.A. Ark, Univ. of Calif., Berkeley. 1938.

### Corynebacterium flaccumfaciens var. aurantiacum

- 12813 M.L. Schuster, Univ. of Nebraska. 1957. Phytopath., 1957, 47, 51.

### Corynebacterium flavidum Holland: See Corynebacterium striatum

### Corynebacterium helvolum (Zimmermann) Kisskalt and Berend: See Brevibacterium helvolum

### Corynebacterium hemolyticum MacLean, Liebow and Rosenberg

- 9345 A.A. Liebow, strain 11018, Yale Univ. 1947. J. Infect. Dis., 1946, 79, 69.

### Corynebacterium histidinovorans

- 11442 E. Adams, NIH. From soil. J. Biol. Chem., 1954, 209, 829.

### Corynebacterium hoagii (Morse) Eberson

- 7005 F.S. Orcutt, Virginia Polytech. Inst., Blacksburg. 1938.

### Corynebacterium insidiosum (McCulloch) Jensen

- 10253 W.H. Burkholder, Cornell Univ. 1947.

### Corynebacterium liquefaciens Prévot: See Corynebacterium acnes

### Corynebacterium michiganense (Erw. Smith) Jensen

- 492 L.A. Rogers, USDA. 1925. From tomato.  
 4450 R.E. Buchanan, Iowa State College. 1929.  
 7429, 7430 and 7433 P.A. Ark, Univ. of California, Berkeley. 1939. Strains from tomato stem canker, Cyphomandra fragrans, and Earliana tomato, respectively.  
 10202 P.A. Ark, strain White. 1946. J. Bact., 1946, 51, 699. Virulent for Bonny Best tomato.

### Corynebacterium mycetoides (Castellani) Ortali and Capocaccia

- 10754 A. Castellani, strain 2, Inst. de Med. Trop., Lisbon, Portugal. 1949. Received as Micrococcus mycetoides. J. Trop. Med. and Hyg., 1948, 51, 245.

### Corynebacterium nephridii Büsing et al.

- 11425 E.V. Morse, Univ. of Wisconsin. 1953.

### Corynebacterium parvum Prévot

- 11829 H. Seeliger, Hygiene-Inst. der Univ. Bonn, Venusberg, Germany. 1954. Prof. Prévot.  
 12930 and 12931 H. Seeliger, strains 643-C and 936-D. 1957.

### Corynebacterium paurometabolum Steinhaus

- 8598 E.A. Steinhaus, NIH. Rocky Mountain Lab., Hamilton, Montana. 1942. J. Bact., 1941, 42, 757.

## BACTERIA

### Corynebacterium poinsettiae Starr and Pirone

9069 and 9070 W.H. Burkholder, strains CP21 and CP1, Cornell Univ. 1943.

9682 M.P. Starr, strain CP2, Hopkins Marine Sta., Pacific Grove, Calif. 1945. *Phytopath.*, 1942, 32, 1076.

### Corynebacterium pseudodiphtheriticum Lehmann and Neumann

8981 NCTC, strain 1929A. 1938. *J. Hyg.*, 1924, 23, 241.

10700 and 10701 Julia M. Coffey, strains 153 and 39555, New York State Dept. of Health. 1949.

### Corynebacterium pseudotuberculosis (Buchanan) Ebersson

809 J.S. Buckley, USDA. 1926. From sheep lung.

8666 F.A. Humphreys, strain A, Dept. Pensions and Natl. Health, Kamloops, B.C., Canada. 1942. *Canadian J. Comp. Med.*, Feb., 1942.

### Corynebacterium pyogenes (Glage) Ebersson

8104 Jensen-Salsbery Labs., Inc., Kansas City, Mo., strain 3-25. 1941. From bovine mastitis.

8104 and 8105 Jean Ferguson, strains C2418 and C2429 (bovine), New York State Vet. Coll., Ithaca. 1941. *Cornell Vet.*, 1940, . 30, 299.

9730, 9731 and 9732 Jensen-Salsbery Labs., Inc., strains (bovine) 3-18, 3-33 and 3-42, Kansas City, Mo. 1945.

9733 Jensen-Salsbery Labs., Inc., strain 3-23 (porcine). 1945.

### Corynebacterium renale (Migula) Ernst

10848, 10849 and 10850 E.V. Morse, strains 5, 9 and 10, Univ. of Wisconsin. 1951. From cattle with pyelonephritis.

### Corynebacterium sepedonicum (Spieckermann and Kotthoff) Skaptason and Burkholder

9850 W.H. Burkholder, strain CS5, Cornell Univ. 1945.

### Corynebacterium simplex Jensen: See *Arthrobacter simplex*

### Corynebacterium striatum. (Chester) Ebersson

6940 (*Corynebacterium flavidum*) NCTC, strain 764. 1938. F.C. Minett.

### Corynebacterium tritici (Hutchinson) Burkholder

11402 and 11403 M.P. Starr, strains CT101 and CT102, Univ. of Calif., Davis. 1952. Strains A (Indian isolate) and B (Egyptian isolate) from R.S. Vasudeva. Motile.

### Corynebacterium tumescens Jensen: See *Arthrobacter tumescens*

### Corynebacterium ulcerans Gilbert and Stewart: See *Corynebacterium diphtheriae*

### Corynebacterium vesiculare Büsing et al.

11426 E.V. Morse, Univ. of Wisconsin, via G.J. Jann. 1953.

### Corynebacterium xerosis Lehmann and Neumann

373 J.G. Fitzgerald, Univ. of Toronto, Canada. 1925. From human ear discharge.

7094 New York State Dept. of Health, Albany, strain 155. 1938. From human throat.

7711 University of Maryland. 1940.

9016 Julia M. Coffey, strain 39165, New York State Dept. of Health. 1943. From throat.



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### Corynebacterium spp.

- 184 NCTC, strain 7510. 1950. Received as *Micrococcus rhodochrous*.
- 6931, 6933, 6935 and 6936 NCTC, strains 1914, 1918, 1922 and 1924 (M. M. Barratt's types III, V, VI and VII respectively). 1938. J. Hyg., 1924, 23, 241.
- 6937, 6938 and 6980 NCTC, strains 1926, 1928 and 1929 (M. M. Barratt's types VIII, IX and X respectively.) 1938. J. Hyg., 1924, 23, 241.
- 7762 I. Davidsohn, "Corynebacterium H", Mt. Sinai Hospital, Chicago, Ill. 1940. Proc. Linnean Soc. of N.S. Wales, 1934, 59, 19.
- 8184 L. D. Bushnell, strain X, Kansas State College. 1941. Trans. Kansas Acad. Sci., 1941, 44, 39.
- 9736, 9737 and 9738 Jensen-Salsbery Labs., Inc., strains 3-49, 3-50 and 3-34, Kansas City, Mo. 1945. Received as *Corynebacterium pseudodiphthericum*. From ovine pneumonia.
- 9739, 9740 and 9741 Jensen-Salsbery Labs., Inc., strains 3-30, 3-43 and 3-44. 1945. Received as *Corynebacterium pseudodiphthericum*. From bovine pneumonia.
- 9742, 9743 and 9744 Jensen-Salsbery Labs., Inc., strains 3-45, 3-46 and 3-47. 1945. Received as *Corynebacterium pseudodiphthericum*. From porcine pneumonia.
- 11035 H. Friedlander, strain MT-9, NIH. 1951. From subcutaneous abscess of white mouse.
- 11036 H. Friedlander, strain RT-3. 1951. From throat culture of white rat.

### Cytophaga aurantiaca Winogradsky

- 12208 NCIB, strain 8628. 1957.

### Cytophaga fermentans Bachmann

- 12470 B. J. Bachmann, strain MX.1.1, Univ. of Calif., Berkeley. 1956. J. Gen. Microbiol., 13, 541.

### Cytophaga myxococcoides: See *Sporocytophaga myxococcoides*

### Desulfovibrio desulfuricans (Beijerinck) Kluver and van Niel

- 7757 (*Spirillum desulfuricans*) R. L. Starkey, strain C-6, New Jersey Agric. Expt. Sta. 1943. Arch. f. Mikrobiol., 1938, 9, 268.

### Diplococcus pneumoniae Weichselbaum

#### Types 1 to 32

- 6301 to 6332 Bernice E. Eddy, NIH. 1947. U.S. Pub. Health Repts., 1944, 59, 449.

#### Types 33 to 40

- 8333 to 8340 Bernice E. Eddy, NIH. 1947. U.S. Pub. Health Repts., 1944, 59, 449.

#### Types 41 to 59

- 10341 to 10359 Bernice E. Eddy, NIH. 1947. U.S. Pub. Health Repts., 1944, 59, 449.

## BACTERIA

### Diplococcus pneumoniae (Continued)

#### Types 61 to 73

- 10361 to 10373 Bernice E. Eddy, NIH. 1947. U.S. Pub. Health Repts., 1944, 59, 449.

#### Miscellaneous types

- 10813 L.H. Schmidt, CHA strain (Type 3), Christ Hospital, Cincinnati. 1950. J. Bact., 1944, 47, 509.  
11733 Bernice E. Eddy, strain R36A, NIH. 1954. Rough phase, derived from Type 2. Production of C polysaccharide.  
12213 C.M. MacLeod, strain I-192R, New York Univ. College of Med. 1955. Rough phase, derived from Type 1. Production of C polysaccharide.

#### Types not specified

- 9163 Bernice E. Eddy, strain DRI, NIH. 1947. Rough phase.  
10015 R.J. Dubos, strain SVI, Rockefeller Inst. 1946.

### Eberthella alcalifaciens de Salles Gomes

- 9886 L. de Salles Gomes, Brazil, through R.E. Buchanan. 1945. From feces. Revista de Instituto Adolfo Lutz, 1944, 4, 182.

### Erwinia amylovora (Burrill) Winslow et al.

- 7398, 7400 and 7401 P.A. Ark, Univ. of California, Berkeley. 1938. From *Pyrus communis*, *Photinia arbutifolia* and *Pyracantha angustifolia*, respectively.

### Erwinia ananas Serrano

- 11530 M.A. Smith, strain 4294, USDA. 1953.

### Erwinia aroideae (Townsend) Holland

- 12286 and 12312 W.H. Burkholder, strains SR23 and SR31, Cornell Univ. 1955.

### Erwinia atroseptica (van Hall) Jennison

- 494 L.A. Rogers, USDA. 1925. Lucia McCulloch. From calla lily soft rot.  
496 L.A. Rogers. 1925. O. Appel, Berlin, Germany.  
4446 R.E. Buchanan, Iowa State College. 1929. Nellie A. Brown through M.K. Patel. Produces potato rot.  
7403 and 7404 P.A. Ark, Univ. of California, Berkeley. 1938. From *Delphinium ajacis*, and early white bush scallop squash, respectively.  
11773 C. May, USDA. 1954. W.C. Bryan, U.S. Forest Service, Tucson, Arizona. Isolated from *Cereus giganteus*.

### Erwinia carotovora (Jones) Holland

- 138 AMC. 1925.  
495 L.A. Rogers, USDA. 1925. L.R. Jones, Madison, Wisconsin. From soft rot of carrot.  
8061 P.A. Ark, Univ. of California, Berkeley. 1941. C. Stapp. From rot of potato tuber.

### Erwinia chrysanthemi Burkholder et al.

- 11662 and 11663 W.H. Burkholder, strains 16 and 17, Cornell Univ. 1953. Phytopath., 1953, 43, 522.

## BACTERIA

### Erwinia nimipressuralis Carter

- 9912 J.C. Carter, strain 41-173, Urbana, Illinois. 1945. Elm parasite. Illinois Nat. Hist. Surv. Bull., 1945, 23, Art. 4.

### Erwinia tracheiphila (Erw. Smith) Holland

- 11417 W.H. Burkholder, strain ET6, Cornell Univ. 1953.

### Erysipelothrix insidiosa (Trevisan) Langford and Hansen (Erysipelothrix rhusiopathiae)

- 805 J.S. Buckley, USDA. 1926. From case of swine erysipelas.  
8139 H.W. Schoening, strain S-1, USDA. 1941.  
10734 and 10735 R.R. Henley, strains M<sub>3</sub>LP<sub>3</sub> and 422-1, USDA. 1949.  
11916 and 11917 A.M. Lee, strains P-3 and SE830, USDA. 1954.

Porcine strains.

### Erysipelothrix rhusiopathiae (Migula) Winslow et al.: See Erysipelothrix insidiosa

### Escherichia acidilactici Bergey et al.: See Escherichia coli var. acidilactici

### Escherichia anaerogenes Bergey et al.

- 6878 NCTC, strain 1677. 1938.

### Escherichia anindolica Bergey et al.

- 6879 NCTC, strain 4143. 1938. Iowa State Coll. strain 104.  
J. Bact., 1933, 25, 461.

### Escherichia aurescens (Parr) Malligo et al.

- 12814 L.W. Parr, George Washington Univ. 1957. J. Bact., 1955, 70, 498.

### Escherichia coli (Migula) Castellani and Chalmers

- 26 AMC. 1925.

- 4157 NCTC, strain 86. 1927. Original strain isolated by Escherich in 1886.

- 4656 and 4657 E.G. Hastings, Univ. of Wisconsin. 1930. Types R and S.

- 6880, 6881, 6882 and 6883 NCTC strains 844, 846, 848 and 1715.  
MacConkey's Groups I, II, III and IV. J. Path. Bact., 1921, 24, 192.

- 8329 A.H. Eggerth, strain Woo, Long Island Coll. of Med. 1942.

- 8330 A.H. Eggerth, strain Sta. 1942.

- 8739 I.C. Gunsalus, strain Crookes, Cornell Univ. 1942. J. Biol. Chem., 1941, 141, 853.

- 9637 S.A. Waksman. 1944. Agric. Expt. Sta., New Brunswick, N.J. Streptomycin and Streptothricin assay.

- 9661, 9662 and 9663 J.O. Lampen, strains 1572-228, 1250-228 and 532-171, American Cyanamid Co., Stamford, Conn. 1944.  
J. Bact., 1944, 48, 401. Amino acids assays.

- 9723 R.R. Roepke, strain 15, American Cyanamid Co. 1945.  
J. Bact., 1944, 48, 401. Parent strain of the following mutants:

- 9723a R.R. Roepke, strain 273-384. 1946. Requires p-aminobenzoic acid. J. Biol. Chem., 1946, 164, 789.

- 9723b R.R. Roepke, strain 303-138. 1945. Requires nicotinamide or nicotinic acid.

- 9723c R.R. Roepke, strain 754T-171. 1945. Requires thiamine.

## BACTERIA

### Escherichia coli (Continued)

- 9723d R.R. Roepke, strain 558-228. 1945. Requires threonine.
- 9723e R.R. Roepke, strain 403-230. 1945. Requires glycine or serine.
- 9723f R.R. Roepke, strain 632-460. 1953. Requires phenylalanine.
- 9723g R.R. Roepke, strain 550-460. 1953. Requires uracil, cytosine, or isocytosine.
- 9723h R.R. Roepke, strain 70-462. 1952. Requires thymine.
- 10053 G.F. Luippold, strain 5396/38, AMC. 1946. For Vi antigen.
- 10536 P.G. Stansly, MacLeod strain, American Cyanamid Co., Stamford, Conn. 1948. PCI strain 540. J. Bact., 1947, 54, 549. Assay of polymyxin.
- 10586 A.L. Caldwell, Shive-Texas strain, Eli Lilly Co. 1949.
- 10787 NCTC, strain 7020. 1950. E.F. Gale.
- 10795 H.C. Lichstein, strain Gratia, Univ. of Tennessee. 1950. J. Biol. Chem., 1949, p.177.
- 10799 NCIB, strain 8134. 1950.
- 11097 C.H. Werkman, strain E26, Iowa State College. 1951.
- 11105 P.R. Burkholder, strain 113-3 Davis, Yale Univ. 1951.
- 11143 M. Demerec, strain Sd-4 (streptomycin dependent), CIW. 1952. Genetics, 1951, 36, 585. Derived from B/r strain.
- 11229 AMC, strain 198 (U.S. Pub. Health Service). 1952.
- 11246 V.A. Najjar, Johns Hopkins Hospital, Baltimore, Md. 1952. Fed. Proc., 1952, 11, 264.
- 11370 W.A. Randall, strain PCI 533, FDA. 1952. Streptomycin resistant.
- 11698 W.W. Ferguson, strain 18027, Michigan State Dept. Health, Lansing. 1953. Alpha type.
- 11699 W.W. Ferguson, strain 18027a. 1953. Beta type.
- 11770 B.D. Davis, strain M83-5, U.S. Public Health Service, Tuberculosis Research Lab., N.Y. City. 1953.
- 11775 NCTC, strain 9001. 1954.
- 11776 NCTC, strain 9002. 1954.
- 11839 CDC. Serotype O group 28. 1954.
- 11840 AMC. 1956. Serotype O group 26.
- 11887 A. Goldstein, strain Harvard, Harvard Medical School. 1954.
- 12014 and 12015 CDC, strains 5624-50 and 585-52. 1955.

(Additional serotypes of *Escherichia coli* are available.)

### Escherichia coli var. acidilactici (Topley and Wilson) Yale

- 128 (*Escherichia acidilactici*) AMC. 1925.

### Escherichia coli var. communior (Topley and Wilson) Yale (*Escherichia communior*)

- 4163 J.S. Buckley, strain 49, USDA. 1927.
- 4346 and 4347 Elizabeth C. Robertson, strains RO2b and RO11ph, Connaught Labs., Toronto, Canada. 1928.
- 6521 H.W. Schoening, strain 73-A, USDA. 1938.
- 7009 F.S. Orcutt, strain F, Virginia Polytech. Inst., Blacksburg. 1938.
- 7010 and 7011 F.S. Orcutt, strains D and E. 1938.



## BACTERIA

### Escherichia coli var. communior (Continued)

- 10740 F. Stimpert, strain 04655, Parke, Davis and Co., Detroit, Mich. 1949. Also identified as strain 3583Q2.

### Escherichia coli var. neapolitana (Topley and Wilson) Yale (Escherichia neapolitana)

- 133 AMC, 1925.  
6894 NCTC, strain 4139. 1938. Iowa State Coll. strain 56. J. Bact., 1933, 25, 461.

### Escherichia coli mutabilis Castellani and Chalmers

- 9980 K.N. Atkins, strain 319 W, Dartmouth Med. School. 1946.

### Escherichia communior Bergey et al.: See Escherichia coli var. communior

### Escherichia freundii (Braak) Yale

- 8090 C.H. Werkman, Iowa State Coll. 1941.  
8454 NCTC, strain 3735. 1942. A.J. Kluyver. J. Bact., 1932, 23, 167.

- 12012 (Ballerup group) W.H. Ewing, CDC. 1955. Vi-W.

### Escherichia intermedia (Werkman and Gillen) Vaughn and Levine

- 6750 C.H. Werkman, strain M8BK, Iowa State Coll. 1938. J. Bact., 1932, 23, 167.

### Escherichia neapolitana Castellani and Chalmers: See Escherichia coli var. neapolitana

### Escherichia paragrauenthali Castellani and Chalmers

- 6895 NCTC, strain 4742. 1938. From ice cream.

### Escherichia pseudocoloides (Castellani) Castellani and Chalmers

- 6901 NCTC, strain 4740. 1938.

### Escherichia vekanda Bergey et al.

- 964 M. Levine, strain 2039, Iowa State Coll. 1926. From creamery waste.

### Escherichia spp. ("Alkalescens-Dispar Group")

#### Group O1

- 8763 O. Felsenfeld, Manteno State Hospital, Manteno, Illinois. 1942. Received as Shigella alkalescens.  
9339 AMC, strain 43-654. 1944. Received as Shigella alkalescens.  
9581 O. Felsenfeld, strain EC152, Chicago Medical School. 1944. Received as Shigella alkalescens. From dysentery patient.

#### Group O2

- 12041 CDC, strain A-193. 1955.

#### Group O3

- 12042 CDC, strain S-167. 1955.

#### Group O4

- 12043 CDC, strain S-171. 1955.

### Escherichia spp.

- 9240 and 9242 O. Felsenfeld, strains D799 and D120, Dept. Pub. Welfare, Chicago. 1943. Paracolon organisms with partial antigens of the Salmonella Group VI-VII. From stools of Salmonella montevideo carrier.  
9492 A.P. Stewart, Golden State Co., Ltd. San Francisco, Calif. 1944. Production of ascorbic acid.

### Eubacterium limosus (Eggerth) Prévot

- 8486 (Bacteroides limosum) A.H. Eggerth, Long Island Coll. of Med. 1942. J. Bact., 1935, 30, 277.

## BACTERIA

Flavobacterium acetylicum Levine and Soppeland: See Brevibacterium acetylicum

Flavobacterium acidificum Steinhaus

8366 E.A. Steinhaus, NIH, Rocky Mountain Lab., Hamilton, Montana. 1942. J. Bact., 1941, 42, 757.

Flavobacterium aquatile (Frankland and Frankland) Bergey et al.

11947\* O.B. Weeks, strain Taylor F36, Univ. of Idaho. 1954.

Flavobacterium arborescens (Frankland and Frankland) Bergey et al.

4358 A. Stewart, Florida State College for Women. 1928.

Flavobacterium devorans (Zimmermann) Bergey et al.

10829 NRRL, strain B-54. 1950. F.J. de Fontenoy; N. Porges. Bact. Proc., 1950, p. 21.

Flavobacterium esteroaromaticum (Omelianski) Bergey et al.

8091 C.P. Hegarty, Georgetown Univ., School of Med. 1941.

Flavobacterium flavescens (Pohl) Bergey et al.

8315 C. Darling, strain 72, Allegheny College, Meadville, Pa. 1941. J. Bact., 1941, 42, 83.

Flavobacterium odoratum

4651 D.H. Bergey, Univ. of Pennsylvania. 1930. M. Stutzer. Zblt. Bakt. Abt. I. Orig., 1929, 102, 113.

Flavobacterium proteus Shimwell and Grimes

12841 NCIB, strain 8771 (strain 42). 1957. Shaefer Brewing Co., Brooklyn, N.Y. Wallerstein Lab. Com., 1955, 18, 275.

Flavobacterium resinovororum Delaporte and Daste

12524 P. Daste, Univ. de Paris. 1956. Compt. Rend. Acad. Sci., 1956, 242, 831.

Flavobacterium suaveolens Soppeland

958 M. Levine, strain 1045 (1), Iowa State Coll. 1926. From creamery waste.

Flavobacterium synxanthum Bergey et al.: See Pseudomonas synxantha

Flavobacterium vitarumen Knutsen: See Brevibacterium vitarumen

Fusobacterium polymorphum Knorr

10955 H. Hoffman, Ohio State Univ., 1951. Ohio J. Science, 1955, 53, 141.

Gaffkya homari Hitchner and Snieszko

10400\* E.R. Hitchner, Univ. of Maine. 1948. J. Bact., 1947, 54, 47.

Gaffkya tetragena (Gaffky) Trevisan

10875 A. Abrams, strain 16-A-2, AMC. 1951.

Haemophilus aegyptius (Trevisan) Pittman and Davis

11116 Margaret Pittman, strain 180-a, NIH. 1951.

Haemophilus ducreyi (Neveu-Lemaire) Bergey et al.

9975 A. Abrams, strain 36-F-1, AMC. 1954.

11422 Julia M. Coffey, strain 4987, New York State Dept. of Health. 1953. Ellison strain.

Haemophilus gallinarum (Delaplane et al.) Eliot and Lewis

12082 W.J. Hall, strain 4570, USDA. 1955.

## BACTERIA

### Haemophilus haemolyticus Bergey et al.

10014 Margaret Pittman, strain 536, NIH. 1946.

### Haemophilus influenzae (Lehmann and Neumann) Winslow et al.

8149 Margaret Pittman, strain 579, NIH. 1941. From eye.

9131, 9132 and 9133 W. Gingrich, strains SPV, O and T, Univ. of Texas. 1943.

9333 Margaret Pittman, strain 525, NIH. 1947. From spinal fluid.

#### Type a

9006 Margaret Pittman, strain 610, NIH. 1945.

9327 Margaret Pittman, strain 620, NIH. 1947. From spinal fluid. J. Bact., 1943, 44, 620.

#### Type b

9334 Margaret Pittman, strain 576, NIH. 1947. From spinal fluid. U.S. Pub. Health Repts., 1946, 61, 768.

9795 Margaret Pittman, strain 641, NIH. 1945.

10211 AMC, strain 36-A-1. 1947. Margaret Pittman strain 572.

#### Type c

9007 Margaret Pittman, strain 624, NIH. 1945.

#### Type d

9008 Margaret Pittman, strain 611, NIH. 1945.

9332 Margaret Pittman, strain 522, NIH. 1945. D. Mulder; J. van Lookeren. Also described as type d2 or g. J. Bact., 1947, 53, 449.

#### Type e

8142 Margaret Pittman, strain 595, NIH. 1945.

#### Type f

9833 Margaret Pittman, strain 644, NIH. 1945.

### Haemophilus parainfluenzae Rivers

7901 Margaret Pittman, strain 429, NIH. 1940. U.S. Pub. Health Repts., 1940, 55, 915.

9796 Margaret Pittman, strain 655, NIH. 1950.

### Haemophilus piscium Snieszko et al.

10801 S.F. Snieszko, strain 16, U.S. Fish and Wildlife Ser., Kearneysville, W. Va. 1957. J. Bact., 1950, 59, 699.

### Hemophilus paraptussis Eldering and Kendrick : See Bordetella paraptussis

### Hemophilus pertussis Holland: See Bordetella pertussis

### Herellea spp.

9955 and 9956 W.E. Deacon, strains 6-561 and 5-156A, Dept. Pub. Health, Lincoln, Neb. 1946. J. Bact., 1945, 49, 511.

11959 J.P. Gilman, Highland View Hospital, Cleveland, Ohio. 1954. From case of fulminating septicemia.

### Hydrogenomonas facilis Schatz and Bovell

11228 A. Schatz, Brooklyn College, Brooklyn, N.Y. 1952. J. Bact., 1952, 63, 87.

### Jensenia canicruria Bisset and Moore

11048\* NCTC, strain 8036. 1951. J. Gen. Microbiol., 1950, 4, 280.

## BACTERIA

Klebsiella ozaenae (Abel) Bergey et al. (See also Klebsiella pneumoniae)  
8408, 8409 and 8410 F.E. Colien, strains 397, 401 and 418,  
Creighton Univ. School of Med., Omaha, Nebraska. 1942.  
Král-Pribram Collection.

Klebsiella pneumoniae (Schroeter) Trevisan

132 AMC. 1925.

9590 and 9591 W.A. Randall (penicillin sensitive and penicillin  
resistant strains, respectively), FDA. 1944.

9997 R. Donovan, Squibb Inst. for Med. Res., New Brunswick,  
N.J. 1946. J. Bact., 1945, 50, 623. Antibiotic assay.

10031 FDA, strain PCI 602. 1946. Streptomycin assay.

### Type A

4208 L.A. Julianelle, strain Sc, Rockefeller Inst. Hospital. 1927.  
J. Exptl. Med., 1926, 44, 113.

4368 W.W. Beattie, strain 35784, McGill Univ., Montreal, 1928.

6540 G.J.M. Bullowa, strain Wright, Harlem Hospital, New York  
City. 1938.

8044, 8045, 8046 and 8047 Sara A. Scudder, strains 12394 C.L.,  
55280 O.L., 54705 M.Y. and 9008 G.R., City Hospital,  
Welfare Island, N.Y. 1941.

8048, 8049 and 8050 Sara A. Scudder, strains 6905 H.Y., 12595  
W.L. and 7201 H.Y. 1941.

### Type B

4727 H. Schlossberger, Reichsgesundheitsamt, Berlin. 1931.  
From beaver.

7380 L.A. Julianelle, Washington Univ. Med. School, St. Louis,  
Mo. 1938.

8052 Sara A. Scudder, strain 11094 TI, City Hospital, Welfare  
Island, N.Y. 1941.

10872 AMC, strain 35-A-2. 1951. Julianelle strain EGS.

### Type C

10273 AMC, strain 35-A-3. 1948.

### Type D

11296 AMC, strain 35-E-5. 1952. Received as Klebsiella ozaenae.  
NCTC strain 5050.

### Type E

11297 AMC, strain 35-E-6. 1952. Received as Klebsiella ozaenae.  
NCTC strain 5051.

### Type F

11298 AMC, strain 35-E-4. 1952. Received as Klebsiella ozaenae.  
NCTC strain 5052.

Klebsiella rhinoscleromatis Trevisan

6908 NCTC, strain 1936. 1938. E.P. Snijders, Amsterdam.  
From rhinoscleroma case. Trans. 4th Congress Far East.  
Assn. Trop. Med., 2, 296.

9436 A. Muggia, Regia Università di Torino, Quito, Ecuador. 1947.

Kurthia zopfii (Kurth) Trevisan (Bacterium zopfii)

6900 NCTC, strain 405. 1938. L.F. Rettger, Univ. of Chicago.  
J. Bact., 1919, 4, 331.

10538 NCTC, strain 404. 1948. L.F. Rettger, Yale, Univ.



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### Lactobacillus acidophilus (Moro) Holland

- 314 E.O. Jordan, Univ. of Chicago. 1925. L.F. Rettger strain 43.  
 332 L.A. Rogers, USDA. 1925. L.F. Rettger.  
 832 L.F. Rettger, strain 4B (murine), Yale Univ. 1926.  
 4355, 4356 and 4357 W.L. Kulp, strains R-1-1 (murine), Scav. and Pak. (human), Yale Univ. 1928.  
 4796 E.B. Fred, strain L. d. 4, Univ. of Wisconsin. 1932.  
 4913 E.B. Fred, strain L. d. 3, Univ. of Wisconsin. 1933. Pribram Collection. Assay of amino acids.  
 4962 and 4963 L.F. Rettger, strains 3 and 5, Yale Univ. 1935. Received as *Lactobacillus bifidus*.  
 9857 NCTC, strain 2948. 1945. R. Cruickshank strain B. 3. J. Hyg., Cambridge, 1935, 24, 241.  
 11506 E. Hoff-Jørgensen, strain R-26, Univ. of Copenhagen. 1955. Assay of desoxyribonucleic acid. Biochem. J. 1952, 50, 400.  
 11974 and 11975 NCIB, strains 1406 and 1899. 1954.

### Lactobacillus arabinosus Fred, Peterson and Anderson: See

#### Lactobacillus plantarum

### Lactobacillus bifidus (Tissier) Holland

- 11146 and 11147 G. Malyoth, Univ. of Munich. 1951. Zeit. f. Kinderheil., 1950, 68, 358.  
 11617 Mary S. Shorb, strain VT3 (turkey), Univ. of Maryland. 1953. Assay of unidentified growth factor in feedstuffs for chickens. Abstracts, Poultry Sci. Assoc., Vancouver, B.C., Aug. 1953.  
 11618 Mary S. Shorb, strain C31 (chicken), Univ. of Maryland. 1953.

### Lactobacillus bifidus var. pennsylvanicus György

- 11863 P. György, strain 212A, Univ. of Pennsylvania. 1954. Requires growth factor in human milk. J. Bact., 1955, 69, 483.

### Lactobacillus brevis (Orla-Jensen) Bergey et al.

- 367 E.B. Fred, Univ. of Wisconsin. 1925. Received as *Lactobacillus pentoaceticus*. J. Biol. Chem., 1919, 39, 347.  
 4006 C.S. Pederson, New York Agric. Expt. Sta. 1927. W. Henneberg. Zblt. Bakt., II Abt., 1903, 11, 167.  
 8287 R.H. Vaughn, strain 269Y, Univ. of California. 1941. Assay of cytosine and uracil. J. Biol. Chem., 1947, 168, 1.  
 11577 Evelyn B. Tilden, Northwestern Univ. 1953. From oral cavity. J. Dental Res., 1952, 31, 831.

### Lactobacillus buchneri (Henneberg) Bergey et al.

- 4005 C.S. Pederson, New York Agric. Expt. Sta. 1941. F. L. Mickle. N.Y. Agric. Expt. Sta. Tech. Bull. 110, 1925.  
 9460 R.P. Tittsler, USDA. 1948. V.H. Cheldelin. J. Biol. Chem., 1947, 169, 1.  
 11579 Evelyn B. Tilden, Northwestern Univ. 1953. From oral cavity. J. Dental Res., 1952, 31, 831.

### Lactobacillus bulgaricus (Luerksen and Kühn) Holland

- 521 W.R. Albus, USDA. 1925. Received as an original Metchnikoff strain.  
 7993, 7994 and 7995 L.A. Rogers, USDA. 1940. J.M. Sherman strains FN, B and 5.  
 8001 and 9224 M. Rogosa, USDA. 1941 and 1943.

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### Lactobacillus bulgaricus (Continued)

- 10812 J.M. Sherman, strain 09, Cornell Univ. 1950. Requires  
orotic acid. J. Biol. Chem., 1950, 186, 737.  
11842 P.A. Hansen, Univ. of Maryland. 1954. Orla-Jensen strain  
14. Produces l-lactic acid.  
11977 NCIB, strain 76. 1954.

### Lactobacillus casei (Orla-Jensen) Holland

- 334 L.A. Rogers, USDA. 1925. J.M. Sherman.  
393 (Streptobacterium casei) G.J. Hucker, strain 03, New York  
Agric. Expt. Sta. 1925. Orla-Jensen strain 7.  
4007 C.S. Pederson, New York Agric. Expt. Sta. 1927. J. C.  
Torrey strain M. J. Infect. Dis., 1915, 17, 437.  
4646 Faith P. Hadley, strain C3, Univ. of Michigan. 1929. From  
dental caries.  
4961 L.F. Rettger, strain S, Yale Univ. 1934.  
7469 F.M. Strong, Univ. of Wisconsin. 1941. Assay of pantothenic,  
nicotinic and folic acids, riboflavin and pyridoxal.  
8530 C.P. Hegarty, strain Kopeloff K, Georgetown Univ. 1942.  
C.N. Stark.  
9595 J.L. Stokes, strain 4R2127, Merck and Co., Inc., Rahway,  
N.J. 1944. I.C. Gunsalus. Assay of aspartic acid and serine.  
J. Biol. Chem., 1945, 157, 651.  
11578 Evelyn B. Tilden, Northwestern Univ. 1953. From oral  
cavity. J. Dental Res., 1952, 31, 831.  
11582 Evelyn B. Tilden, Northwestern Univ. 1953. Lactose negative.  
12116 M.S. Dunn, strain 280-16, Univ. of California. 1955. A d-  
lactic acid deficient mutant. J. Biol. Chem., 1954, 201, 621.

### Lactobacillus casei var. rhamnosus Rogosa

- 11981 and 11982 NCIB, strains 6557 and 8103. 1954.

### Lactobacillus cellobiosus Rogosa et al.

- 11739 and 11740 M. Rogosa, strains 19LC3 and 557, NIH. 1954.  
J. Bact., 1953, 65, 681.

### Lactobacillus delbrueckii (Leichmann) Beijerinck

- 9649 R.P. Tittsler, strain 730, USDA. 1944. Calvert strain.  
Production of l-lactic acid from corn sugar and molasses.  
10863 NRRL, strain B-445. 1951.  
11443 M. Brin, New England Deaconess Hosp., Boston, Mass.  
1953. Arch. Biochem. and Biophys., 1952, 39, 214.  
11978 NCIB, strain 4033. 1954. L.F. Rettger. J. Bact., 1932, 24, 1.  
11979 NCIB, strain 7473. 1954. M.B. Brown. J. Biol. Chem.,  
1945, 157, 651.

### Lactobacillus fermenti Beijerinck

- 8289 R.H. Vaughn, Univ. of California, Berkeley. 1941.  
Received as Lactobacillus gayonii. C.S. Pederson.  
9338 H.P. Sarett, strain 36, Oregon State College. 1944. Assay of  
thiamine and histidine. J. Biol. Chem. 1925, 64, 643.  
11581 Evelyn B. Tilden, Northwestern Univ. 1953. From oral  
cavity. J. Dental Res., 1952, 31, 831.

### Lactobacillus frigidus Bhandari and Walker

- 11307 NCIB, strain 8518. 1952. T.K. Walker. From beer.

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### Lactobacillus fructovorans Charlton, Nelson and Werkman

- 8288 R.H. Vaughn, Univ. of California, Berkeley. 1941. C. S. Pederson.

### Lactobacillus helveticus (Orla-Jensen) Holland

- 8018 C.S. Pederson, New York Agric. Expt. Sta. 1941. S. Orla-Jensen. NCIB strain 8025.  
10386 R.P. Tittsler, strain V76, USDA. 1948. W. Dorner.  
10797 R.P. Tittsler, strain V80, USDA. 1950. Swiss cheese starter.  
12046 E.E. Snell, strain H-80, Univ. of Texas. 1955. Assay of pantethine. J. Bact., 1950, 60, 49.

### Lactobacillus hilgardii Douglas and Cruess

- 8290 R.H. Vaughn, strain 9, Univ. of California, Berkeley, 1941. From wine.

### Lactobacillus lactis (Orla-Jensen) Holland

- 8000 M. Rogosa, USDA. 1941. W. Dorner. Assay of vitamin B<sub>12</sub>. J. Biol. Chem., 1948, 176, 1463.  
10697 H.B. Woodruff, strain MB 367, Merck and Co., Inc., Rahway, N.J. 1949. Assay of vitamin B<sub>12</sub>. Science, 1949, 110, 507.  
10705 K.C. Winkler, strain 1175, Hygiënisch Lab., Utrecht. 1949. Internat. Zeit. für Vitaminforschung, 1949, 20, 369.  
11061 R.P. Tittsler, strain V-104, USDA. 1951.  
11983 NCIB, strain 8011. 1954.  
12314 P.A. Hansen, strain L 1 I, Univ. of Maryland. 1955. From Orla-Jensen's laboratory.  
12315 P.A. Hansen, strain L 1 10, Univ. of Maryland. 1955. Co-type culture from Orla-Jensen's laboratory.

### Lactobacillus leichmannii Bergey et al.

- 4797 R.P. Tittsler, strain 326, USDA. 1948. E.B. Fred strain F 59. Assay of vitamin B<sub>12</sub>.  
7830 R.P. Tittsler, strain 313, USDA. 1948. Univ. of Wisconsin strain L.d.5. Assay of vitamin B<sub>12</sub>. J. Biol. Chem., 1948, 176, 1465.

### Lactobacillus malefermentans Russell and Walker

- 11306 NCIB, strain 8517. 1952. T.K. Walker. From beer.

### Lactobacillus parvus Russell and Walker

- 11305 NCIB, strain 8516. 1952. T.K. Walker. From beer.

### Lactobacillus pastorianus (van Laer) Bergey et al.

- 8291 R.H. Vaughn, Univ. of California, Berkeley. 1941. NCTC strain 4955. J.M. Shimwell. From beer.

### Lactobacillus pentosus Fred, Peterson and Anderson: See Lactobacillus plantarum

### Lactobacillus plantarum (Orla-Jensen) Holland

- 4008 C.S. Pederson, New York Agric. Expt. Sta. 1928. J. C. Torrey strain B. J. Infect. Dis., 1915, 17, 437.  
8014 (Lactobacillus arabinosus) Elizabeth McCoy, strain 17-5, Univ. of Wisconsin. 1941. Assay of biotin, and nicotinic and p-aminobenzoic acids.  
8041 (Lactobacillus pentosus) E.E. Snell, strain 124-2, Univ. of Texas. 1941. J. Bact., 1948, 55, 683.

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### Lactobacillus plantarum (Continued)

- 8292 R.H. Vaughn, strain 250Y, Univ. of California, Berkeley. 1941. From fermenting olives.
- 10012 J. Alsberg, strain 10S, U. S. Dept. of Commerce. 1946. R. Kuhn. Assay of p-aminobenzoic acid. Ber. Deutsch. Chem. Ges., 1941, 74, 1617.
- 10241 Marjory Stephenson, Univ. of Cambridge. 1947. NCIB strain 7220. Production of acetyl choline.
- 10776 R.P. Tittsler, strain 324, USDA. 1950. E.B. Fred strain 102.
- 11580 Evelyn B. Tilden, Northwestern Univ. 1953. From oral cavity. J. Dental Res., 1952, 31, 831.

### Lactobacillus salivarius var. salicinius Rogosa et al.

- 11742 M. Rogosa, strain HO268, NIH. 1954. J. Bact., 1953, 65, 681.

### Lactobacillus salivarius var. salivarius Rogosa et al.

- 11741\* M. Rogosa, strain HO66, NIH. 1954. J. Bact., 1953, 65, 681.

### Lactobacillus thermophilus Ayers and Johnson

- 8317 NCIB, strain 8119. 1954. M.L. Speck.

### Lactobacillus viridescens Niven and Evans

- 12706\* J.B. Evans, strain S38A, Univ. of Chicago. 1956. J. Bact., 1957, 73, 758.

### Lactobacillus spp.

- 335 L.A. Rogers, USDA. 1925. Received as *L. casei* (epsilon). Assay of uracil and thymine. Arch. Biochem., 1946, 16, 339.
- 10746 NRRL, strain B-1042. 1949. E.E. Snell strain L.d.5.

### Lampropedia hyalina (Ehrenberg) Schroeter

- 11041 E.G. Pringsheim, Univ. of Cambridge, England. 1951.

### Leptotrichia buccalis (Robin) Trevisan

- 12835 S.A. Zahler, strain 4, Univ. of Washington, Seattle. 1957. From human mouth. J. Bact., 1957, 73, 386.

### Leuconostoc citrovorum (Hammer) Hucker and Pederson

- 8082 B.W. Hammer, strain 146, Iowa State College. 1941.

### Leuconostoc mesenteroides (Cienkowski) van Tieghem

- 8042 See *Streptococcus* spp.
- 8293 R.H. Vaughn, strain 37Y, Univ. of California, Berkeley. 1941. McCleskey's Type F. See Use Section.
- 8357 J.A. Alford, Louisiana State Univ. 1942. McCleskey's Type F.
- 9135 W. Gingrich, strain 535, Univ. of Texas. 1943. Requires thiamine, calcium pantothenate and nicotinic acid.
- 10100 See *Streptococcus* spp.
- 10830a NRRL, strain B-512F. 1955. Production of dextran.
- 10877 C.S. McCleskey, strain 152-A, Louisiana State Univ. 1951.
- 10878, 10879 and 10880 C.S. McCleskey, strains 1025-A, 158-B and 719-B. 1951.
- 10881, 10882 and 10883 C.S. McCleskey, strains 548-D, 101-F and 860-F. 1951.
- 11449 NRRL, strain B-1299. 1953. J. Amer. Chem. Soc., 1952, 74, 5339.
- 12291 R.D. DeMoss, strain 39, Johns Hopkins Univ. 1955.
- 12697 See *Streptococcus* spp.



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### Leucothrix cohaerens

- 12870 E.G. Pringsheim, strain Y, Pflanzenphysiol. Inst.,  
Göttingen, Germany, 1957.

### Leucothrix mucor Oersted

- 12869 E.G. Pringsheim, strain X, 1957.

### Lineola longa Pringsheim

- 12905 E.G. Pringsheim, strain Göttingen, Pflanzenphysiol. Inst.,  
Göttingen, Germany. 1957.

### Listeria monocytogenes (Murray et al.) Pirie

- 984 J.H.H. Pirie, South African Inst. Med. Res., Johannesburg.  
1927. Type I.  
4428 Katherine Howell, Michael Reese Hospital, Chicago. 1929.  
E.G.D. Murray, Cambridge Univ. J. Path. and Bact., 1926,  
29, 407.  
7302 Stanford University. 1938.  
7644 M.J. Pelczar, Jr., strain Gibson, State Univ. of Iowa, Coll.  
of Med. 1939. R.A. Webb and M. Barber. J. Path. and  
Bact., 1937, 45, 523.  
7645 M.J. Pelczar, Jr., strain Iowa. 1939. J.R. Porter and  
W.M. Hale.  
7646 and 7647 M.J. Pelczar, Jr., strains 10957 and 12159. 1939.  
From Graham. Science, 1938, 88, 171.  
7648 M.J. Pelczar, Jr., strain Schultz. 1939. R.A. Webb and  
M. Barber. J. Path. and Bact., 1937, 45, 523.  
9493 and 9509 O. Felsenfeld, strains CI and M, Chicago Medical  
School. 1944. From sheep.  
9525 O. Felsenfeld, strain D82. 1944. Type II.

Malleomyces mallei (Zopf) Pribram: See Actinobacillus mallei  
Malleomyces pseudomallei (Whitmore) Breed: See Pseudomonas  
pseudomallei

### Microbacterium flavum Orla-Jensen

- 10340 R.N. Doetsch, strain OJ8, Univ. of Maryland. 1948. From  
S. Orla-Jensen.

### Microbacterium lacticum Orla-Jensen

- 8180 and 8181 C.S. Pederson, strains 5 and 6, New York Agric.  
Expt. Sta., Geneva. 1941. From S. Orla-Jensen.

### Microbacterium thermosphactum McLean and Sulzbacher

- 11509 W.L. Sulzbacher, strain SW 26, USDA. 1953.

### Micrococcus agilis Ali-Cohen

- 998 R.S. Breed, strain KMA, New York Agric. Expt. Sta. 1927.  
Pribram Collection.  
9814 F.W. Fabian, Michigan State College. 1945.

### Micrococcus candicans Flügge

- 8406 and 8407 F.E. Colien, strains 87 and 88, Creighton Univ. Sch.  
of Med., Omaha, Neb. 1942. Král-Pribram Collection.  
8456 NCTC, strain 1657. 1942. Král Collection.

### Micrococcus candidus Cohn

- 6425 A.H. Brown, strain X-25, Univ. of Rochester. 1942. E. O.  
Jordan. J. Infect. Dis., 1935, 56, 1.

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## Micrococcus caseolyticus Evans

8460 NCTC, strain 3251. 1942. Received as Tetracoccus liquefaciens. Sci. Agric., 1929, 10, 111.

## Micrococcus cerolyticus Friedmann and Kern

12559 S.J. Ajl, AMC. 1956. Hydrolyzes wax. Canadian J. Microbiol., 1956.

## Micrococcus cinnabareus Flügge

11890 C.B. van Niel, strain L.A.2.1 YA, Hopkins Marine Station. 1954.

## Micrococcus citreus Migula: See Staphylococcus aureus

## Micrococcus conglomeratus Migula

401 G.J. Hacker, strain 62, New York Agric. Expt. Sta. 1925.

## Micrococcus corallinus Cantani

966 M. Levine, strain 28(3), Iowa State College. 1926.

## Micrococcus cryophilus McLean et al.

12226 R.C. Cleverdon, Univ. of Connecticut. 1955.

## Micrococcus epidermidis (Winslow and Winslow) Hacker: See Staphylococcus epidermidis

## Micrococcus flavoroseus Zettnow

397 G.J. Hacker, strain 349, New York Agric. Expt. Sta. 1925. Král Collection. Zblt. Bakt., I Abt., 1918, 81, 99.

## Micrococcus flavus Trevisan

400 G.J. Hacker, strain 196, New York Agric. Expt. Sta. 1925.

10240 A.R. Stanley, strain 130.21, Commercial Solvents Corp., Terre Haute, Ind. FDA strain 16; PCI strain 1216. Assay of bacitracin.

10240a W.A. Randall, strain PCI 1216/D, FDA. 1954. FDA strain 16RD. Resistant to streptomycin and dihydrostreptomycin.

## Micrococcus freudenreichii Guillebeau

407 G.J. Hacker, strain 71, New York Agric. Expt. Sta. 1925.

8459 NCTC, strain 2699. 1942. Received as Tetracoccus casei. G.J. Hacker.

## Micrococcus hyicus Sompolinsky

11249 D. Sompolinsky, strain 1, Govt. Hosp. Zrifin, Tel Aviv. 1950. Distribution restricted. Schweizer Archiv für Tierärzte, 1953, 95, 302.

## Micrococcus luteus (Schroeter) Cohn

398\* G.J. Hacker, strain 426, New York Agric. Expt. Sta. 1925.

## Micrococcus lysodeikticus Fleming

4698 A. Fleming, Univ. of London. 1930. Test of lysozyme activity. Lancet, 1929, 1, 217.

12698 T.E. King, Oregon State College. 1956.

## Micrococcus metamyceticus Castellani

11824 A. Castellani, Inst. de Med. Trop., Lisbon, 1956.

## Micrococcus myceticus Castellani

11823 A. Castellani, Inst. de Med. Trop., Lisbon. 1954.

## Micrococcus mycetoides Castellani: See Corynebacterium mycetoides

## Micrococcus prevotii Foubert and Douglas: See Peptococcus prevotii

## Micrococcus pyogenes: See Staphylococcus aureus

## Micrococcus roseus Flügge

144 AMC. 1925.

## BACTERIA

### Micrococcus roseus (Continued)

- 177, 178, 179 and 185 R.S. Breed, New York Agric. Expt. Sta. 1925. Král Collection.  
412 and 416 G.J. Hucker, strains 213 and 565, New York Agric. Expt. Sta. 1925.  
516 and 534 K.F. Meyer, Univ. of California, Berkeley. 1925.  
9815 F.W. Fabian, Michigan State College. 1945.

### Micrococcus rubens Migula

- 186 (Micrococcus tetragenus ruber) R.S. Breed, New York Agric. Expt. Sta. 1925. Král Collection. Arb. Bakt. Inst. Tech. Hochschule, Karlsruhe, 1895, 1, 201.

### Micrococcus sodonensis Aaronson

- 11880 S. Aaronson, strain B, Haskins Labs., New York City. 1954. Assay of biotin. J. Bact., 1955, 69, 67.

### Micrococcus varians Migula

- 399 G.J. Hucker, strain 80, New York Agric. Expt. Sta. 1925.

### Micrococcus vernae Herrero

- 10209 I. Pirotsky, Inst. Bacteriologico "Dr. Carlos G. Malbran," Buenos Aires. 1946. Sensitive to snake venoms.

### Micrococcus violagabriellae Castellani

- 12328 A. Castellani, Inst. de Med. Trop., Lisbon. 1955. Annales de l'Institut Pasteur, Oct. 1955.

### Micrococcus spp.

- 9273 and 9274 V. Kubes, strains 1 and 2, Inst. of Vet. Res., Caracas, Venezuela. 1944.  
12084 NCIB, strain 8669. Halophilic. Produces cytochrome  $b_4$ . J. Biochem. Tokyo. 1953, 40, 527.

### Micromonospora chalcea (Foulerton) Orskov

- 12452 E.M. Weber, strain 1464-217L, Chas. Pfizer and Co., Brooklyn, N.Y. 1956. U.S. Patent 2,809,919.

### Micromonospora sp.

- 10026 S.A. Waksman, strain 3450, New Jersey Agric. Expt. Sta., New Brunswick. 1946. Produces micromonosporin.

### Mima polymorpha De Bord

- 9957 W.E. Deacon, strain H-B, Dept. of Health, Lincoln, Neb. 1946. From case of gas gangrene. J. Bact., 1945, 49, 511.  
10973 CDC. 1951.

### Moraxella anatispestifer (Hendrickson and Hilbert) Bruner: See

Pasteurella anatispestifer

### Moraxella bovis (Hauduroy et al.) Murray

- 10900 R.D. Barner, strain KSC494, Michigan State Coll. 1951.

### Moraxella lacunata (Eyre) Lwoff

- 11748 Margaret Pittman, strain I 51 a, NIH. 1954.

### Moraxella spp.

- 12429, 12430 and 12431 D. Locatcher-Khorazo, Columbia-Presbyterian Med. Center, New York, N.Y. 1956. From corneal ulcers.

### Mycobacterium avium Chester

- 11755 A.D. MacDonald, strain St. Elizabeth, USDA. 1954.

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### Mycobacterium balnei Nordén

- 11564, 11565, 11566 and 11567 Å. Nordén, strains X, XVI, BIV, and V, Medicinka Kliniken, Lund, Sweden. 1953. Strains X and XVI from human elbow lesions, strains BIV, and V from swimming pool.

### Mycobacterium bovis Bergey et al. (Mycobacterium tuberculosis var. bovis)

- 7991 H.J. Corper, Natl. Jewish Hospital, Denver, Colo. 1941. New York Board of Health.  
9805 W.A. Hagan, Cornell Univ. 1945.  
9834 B.J. Olson, strain AK, NIH. 1945.  
11529 J.E. Williams, strain 854, USDA. 1957. Vaccine strain.  
11666 Emily W. Emmart, strain Ravenel D114, NIH. 1953.  
11756 W. Steenken, Jr., strain Ravenel, Trudeau Lab., Trudeau, N. Y. 1954.  
11757 and 11798 Emily W. Emmart, strains Ravenel T.B. 411 sub-strain and Ravenel D4, NIH. 1954.  
12621 G. Seidel, Magistrat von Gros-Berlin, Germany. 1956.

### Mycobacterium butyricum Bergey et al.

- 357 Ruth E. Gordon. 1944. From NCTC via E.G. Hastings, Univ. of Wisconsin, strain 74D. Rep. Local Gov. Bd. (Suppl. of Med. Officer), 1912-13, 42, 299.  
11314 F. Stimpert, strain 04909, Parke, Davis and Co., Detroit, Mich. 1952.

### Mycobacterium fortuitum Cruz

- 6841 Ruth E. Gordon, ATCC. 1944. IOC strain 1. Acta Medica de Rio de Janeiro, 1936, 1, 1.  
9820 NCTC, strain 1542. 1945. Král Collection. From fish tubercle.  
11440 E. Darzins, Minneapolis, Minn. 1953. Received as M. giae. Acta Tuber. Scand., 1952, 26, 170.

### Mycobacterium kansasii

- 12478 and 12479 Ann Pollak, strains G133 Bostrom and G93 Barbee, Univ. of Kansas. 1955.

### Mycobacterium lacticola Lehmann and Neumann: See Mycobacterium smegmatis

### Mycobacterium marinum Aronson

- 927 Ruth E. Gordon, ATCC. 1944. J.D. Aronson, Henry Phipps Inst. From fish. J. Infect. Dis., 1926, 39, 315.

### Mycobacterium paraffinicum Davis et al.

- 12670\* John B. Davis, Magnolia Petroleum Co., Dallas, Texas. 1956. From soil. Appl. Microbiol., 1956, 4, 310.

### Mycobacterium paratuberculosis Bergey et al.

- 12227 D.A. Porter, strain 18, USDA. Auburn, Alabama. 1955.

### Mycobacterium phlei Lehmann and Neumann

- 354 Ruth E. Gordon, ATCC. 1944. E.G. Hastings strain 74A; NCTC strain 54.  
356 Ruth E. Gordon, ATCC. 1944. E.G. Hastings strain 74C; NCTC strain 524; butter bacillus of Rabinowitsch.  
10142 F. Kavanagh, strain 17P, New York Botanical Garden. 1946.



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### Mycobacterium piscium Bergey et al.

9819 NCTC, strain 2014. 1945. From cayman.

### Mycobacterium ranae (Küster) Bergey et al.

11375 D. Yegian, Ray Brook State Tuberculosis Hospital, Ray Brook, N.Y. 1952. Streptomycin dependent.

### Mycobacterium rhodochrous (Overbeck) Gordon and Mihm

- 271 E.O. Jordan, "B. mycoides roseus II," University of Chicago. 1925. Rush Medical College.
- 999 R.S. Breed, New York Agric. Expt. Sta., Geneva. 1927. Received as *Bacillus mycoides corallinus*. Pribram Collection; Hefferan.
- 4273 P.H.H. Gray, strain O-3, Rothamsted Expt. Sta., England, through H.J. Conn, New York Agric. Expt. Sta., Geneva. 1928. Received as *Mycobacterium agreste*. Zblt. Bakt. II Abt., 1928, 73, 74.
- 4276 H.J. Conn, New York Agric. Expt. Sta., Geneva. 1928. Received as *Mycobacterium crystallophagum*. P.H.H. Gray., op. cit.
- 4277 H.J. Conn, strain O5. 1928. Received as *Mycobacterium erythropolis*. P.H.H. Gray.
- 9356 P.H.H. Gray, McGill Univ., Montreal, Canada. 1947. Received as *Proactinomyces globerulum*. Proc. Roy. Soc., 1928, 102, 263.

### Mycobacterium smegmatis (Trevisan) Lehmann and Neumann

- 20 Hygienic Lab., strain 181 (butter bacillus), Washington, D.C. 1925.
- 68 Hygienic Lab., strain 361 (*Bacillus leprae* Needham). 1925. From human leprosy.
- 69 AMC, strain H366 (rat No. 1). 1925. Received as *Bacillus leprae*.
- 101 (*Bacillus smegmatis*) Hygienic Lab., strain 178, Washington, D.C. 1925.
- 110 Hygienic Lab., strain 393 (frog bacillus of Moeller). 1925.
- 114 Hygienic Lab., strain 169 (Friedmann's "Bacillus tuberculosis"). 1925.
- 278 E.O. Jordan, "Bacillus smegmatis," Univ. of Chicago. 1925.
- 281 E.O. Jordan (mist bacillus of Moeller). 1925.
- 358 E.G. Hastings, strain 74E, Univ. of Wisconsin. 1925. NCTC strain 335; Marpmann's *Bazillus aus Harn*.
- 359 E.G. Hastings, strain 74F. 1925. NCTC strain 334, G.P. 61.
- 361 E.G. Hastings, "Smegma bacillus." 1925.
- 362 E.G. Hastings. 1925. Butter *Bacillus* of Grassberger.
- 599 E.J. Lynch, Shelton, Conn. 1925. AMNH, strain 69a. Isolated from bovine lung tubercles.
- 607 John McCormick Inst. 1925. Received as Koch's original culture of *Bacillus tuberculosis*. Now avirulent. Amer. Rev. Tuberculosis, 1948, 58, 697. See Use Section.
- 615 P. Hauduroy, 1949. Zblt. Bakt. II Abt., 1913, 37, 595.
- 4676 P. Kyes, Univ. of Chicago. 1930. T.S. Potter. Isolated from tubercles of stork by T. Smith.

## BACTERIA

### Mycobacterium smegmatis (Continued)

- 8157 H.C. de Souza-Araujo, IOC. 1941. From sputum of leper.  
10143 F. Kavanagh, strain 17S, New York Botanical Garden. 1946.  
Determination of bacterial spectrum of antibiotics.

### Mycobacterium thamnopheos Aronson

- 4445 Ruth E. Gordon, ATCC. 1944. J.D. Aronson, Henry Phipps  
Inst. From tuberculosis in snakes. J. Infect. Dis., 1929,  
44, 215.

### Mycobacterium tuberculosis (Zopf) Lehmann and Neumann

(Mycobacterium tuberculosis var. hominis)

- 7690 H.J. Corper, strain 160, Natl. Jewish Hospital, Denver,  
Colo. 1940.  
7989 H.J. Corper, "Gluckson" strain. 1941.  
8207 B.J. Olson, NIH. 1941. Trudeau Sanatorium strain R1,  
Gardner.  
8236 B.J. Olson, strain H37, NIH. 1941.  
8421 AMC. 1942.  
9360 and 9431 Emily W. Emmart, strains H37-RV and H37-RA,  
NIH. 1947.  
9455 Julia M. Coffey, strain 34238, New York State Dept. of  
Health. 1948. J. Freund strain P<sub>2</sub>. Production of old  
tuberculin.  
11752, 11753 and 11754 L.T. Giltner, strains C, Dt and Pn, USDA.  
1954. Production of tuberculin.

Mycobacterium tuberculosis var. bovis Lehmann and Neumann: See  
Mycobacterium bovis

Mycobacterium tuberculosis var. hominis Lehmann and Neumann: See  
Mycobacterium tuberculosis

### Mycobacterium spp. associated with leprous lesions

- 4233, 4234 and 4235 C.W. Duval, strains 18(112), 110 Barry and  
107 Brinkerhoff, Tulane Univ., New Orleans, La. 1928.  
4237 and 4240 Ruth E. Gordon, strains 105 Clegg 1 and 111 Elly,  
ATCC. 1944. C.W. Duval.  
4238 and 4239 C.W. Duval, strains 109 Currie and 104 Duval  
Chrome, Tulane Univ. 1928.  
4241 and 4243 C.W. Duval, strains 114 Levy Chrome and 129  
Lombordo Pellagrine. 1928.  
4244 Ruth E. Gordon, strain 113 Rost and Williams. ATCC. 1944.  
C.W. Duval.  
9031 and 9032 IOC, strains Souza-Araujo Ia and Ib. 1943. From  
leper and from guinea pig.  
9033, 9034 and 9035 IOC, strains Souza-Araujo II, III and V. 1943.  
From ticks experimentally infected from a leper. Memorias  
Inst. Oswaldo Cruz, 1942, 37, 413.

### Mycobacterium sp. Cold-blooded type

- 9823 NCTC, strain 3185. 1945. From terrapin (Chelodonia  
longicollis).

### Mycobacterium sp.

- 9626 L.D. Bushnell, Kansas State College. 1944. J. Bact., 1944,  
48, 219.

## BACTERIA

### Mycoplasma bullata Gray and Thornton

- 4278 H.J. Conn, New York Agric. Expt. Sta. 1928. P.H.H. Gray strain 79. Zblt. Bakt. II Abt., 1928, 73, 74.

### Mycoplasma dimorpha Gray and Thornton

- 4279 H.J. Conn, New York Agric. Expt. Sta. 1928. P.H.H. Gray strain 103. Zblt. Bakt. II Abt., 1928, 73, 74.

### Neisseria catarrhalis (Frosch and Kolle) Holland

- 8176 C.M. Carpenter, strain 20, Univ. of Rochester, New York, N.Y. 1941.  
8193 C.P. Miller, Univ. of Chicago. 1941.

### Neisseria flavescens Branham

- 13120\* Sara E. Branham, strain N155, NIH. 1957. From spinal fluid in case of meningitis. Pub. Health Repts., 1930, 45, 845.

### Neisseria gonorrhoeae Trevisan

- 9793 R.W.H. Gillespie, AMC. 1945.  
9826, 9827, 9828 and 9830 J.E. Faber, strains 1, 2, 3 and 5, AMC. 1945.  
10150 R.W.H. Gillespie, strain 924, AMC. 1946.  
10874 A. Abrams, strain 14-A-2, AMC. 1951.  
11688 and 11689 Julia M. Coffey, strains 40836 (Uri) and 40837 (J.G.), New York State Dept. of Health. 1953. J. Immunol., 1940, 38, 413.

### Neisseria haemolysans Thjøtta and Bøe

- 10379 NCTC, strain 5414. 1951. T. Thjøtta. Acta Path. et Microbiol., Scand. Supp., 1938, 37, 527.

### Neisseria intracellularis Holland: See Neisseria meningitidis

### Neisseria meningitidis (Albrecht and Ghon) Holland (Neisseria intracellularis)

#### Group A<sup>1</sup>

- 13077\* Sara E. Branham, strain M1027, NIH. 1957. Neotype strain for Group A. Internat. Bull. Bact. Nomen. and Taxon., 1958, 8, 1.

#### Group B<sup>1</sup>

- 13090\* Sara E. Branham, strain M2092, NIH. 1957. Neotype strain for Group B. Internat. Bull. Bact. Nomen. and Taxon., 1958, 8, 1.

#### Group C<sup>1</sup>

- 13102\* Sara E. Branham, strain M1628, NIH. Neotype strain for Group C. Internat. Bull. Bact. Nomen. and Taxon., 1958, 8, 1.

#### Group D<sup>1</sup>

- 13113\* Sara E. Branham, strain M158, NIH. Neotype strain for Group D. Internat. Bull. Bact. Nomen. and Taxon., 1958, 8, 1.

### Neisseria perflava Bergey et al.

- 10555 Sara E. Branham, strain 7078, NIH. 1949.

<sup>1</sup>Other strains from Sara E. Branham available on request.

## BACTERIA

Neisseria sicca (von Lingelsheim) Bergey et al.

9913 A. Abrams, strain 14-D-1, AMC. 1945.

Neisseria subflava Bergey et al.

11076 J.E. Faber, strain 831F, Univ. of Maryland. 1951.

Nitrobacter agilis Nelson

12812 R.L. Starkey, Rutgers Univ. 1957.

Nitrosomonas europaea Winogradsky

12246 R. L. Starkey, Rutgers Univ. 1957. H. L. Jensen, Denmark.

Nocardia asteroides (Eppinger) Blanchard

3308 S.A. Waksman, Rutgers Univ. 1945.

6846 NCTC, strain 630. 1938. J. McFadyean strain 24 Foal Blackwell. J.T. Edwards. From hock joint of foal.

8674 NCTC, strain 3489. 1942. H.L. Jensen. From soil. Proc. Linn. Soc. N.S. Wales, 1931, 56, 79.

9504 O. F. Isenfeld, Chicago Medical School. 1944. From case of Madura foot.

9969 and 9970 C.W. Emmons, strains 9955 and 9956, NIH. 1946. From generalized actinomycosis.

10904 and 10905 C.W. Emmons, strains 9974 and 9976. 1951. Human strains.

Nocardia cellulans

12830 NCIB, strain 8868. 1957.

Nocardia convoluta Chalmers and Christopherson

4275 (Mycobacterium convolutum) H.J. Conn, New York Agric. Expt. Sta., Geneva. 1928. P.H.H. Gray. Zblt. Bakt. II Abt., 1928, 73, 74.

Nocardia gardneri (Waksman) Waksman and Henrici

9604 NCTC, strain 6531. 1945. Production of proactinomycin. Brit. J. Exptl. Path., 1945, 26, 337.

Nocardia gibsonii (Erikson) Waksman

4842 NCTC, strain 4575. 1935. A.G. Gibson. Spec. Rep. Ser. Med. Res. Coun. London, 1935, No. 203.

Nocardia vaccinii Demaree and Smith

11092 N.R. Smith, strain BG19, USDA. 1951. From stem galls on Vaccinium.

Nocardia sp.

12288 D.D. Sutton, Univ. of California, Davis. 1955. Orskov's motile strain.

Noguchia granulosis (Noguchi) Olitsky et al.

11479 W. Reiser-Deutsch. New York Eye and Ear Infirmary, New York, N.Y. 1953.

Paracolobactrum aerogenoides Borman et al.

11604 E.K. Borman, strain 3565, Dept. of Health, Hartford, Conn. 1953. Stuart's type 32011. Contains alpha antigen of Stamp and Stone. J. Bact., 1944, 48, 361.

Paracolobactrum arizonae (Kaufmann) Borman (Salmonella arizonae)

12525 CDC, strain 3153-55. 1955. Antigenic structure 7:1, 2, 6.

12324 CDC, strain 1089-53. 1955. Antigenic structure 10:1, 2, 5.

12325 CDC. 1955. Antigenic structure 23:33-25.



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### Paracolobactrum coliforme Borman et al.

- 11605 E.K. Borman, strain 3754, Dept. of Health, Hartford, Conn.  
1953. Stuart's Type 31611.

### Paracolobactrum intermedium Borman et al.

- 11102 M. St. Martin, strain Par 1-a, Ministry of Health, Montreal,  
Canada. 1951.  
11606 E.K. Borman, strain 4920, Dept. of Health, Hartford, Conn.  
1953.

### Pasteurella anatipestifer (Hendrickson and Hilbert) Hauduroy et al.

- 11845 (*Moraxella anatipestifer*) D.W. Bruner, Cornell Univ. 1954.  
Cornell Vet., 1932, 22, 239.

### Pasteurella mastidis (Miessner and Schoop) Hauduroy et al.

- 10898 and 10899 E.A. Tunnicliff, strains B-31(4540) and H-5106,  
Montana State College. 1951. From sheep.

### Pasteurella multocida (Lehmann and Neumann) Rosenbusch and Merchant

- 6524, 6526 and 6529 H.W. Schoening, strains S-230, D-M-2 and  
Duck-S, USDA. 1938.  
6530 and 6535 I. Danielson, Lederle Labs., Pearl River, N.Y.  
1949. USDA strains H-1054 and 60-L, Types II and III.  
Amer. J. Vet. Res., 1943, 4, 110.  
6533 and 6534 H.W. Schoening, strains 590-L and S-1, USDA. 1938.  
6587 and 6588 Vet. Corps, AMC, strains Scott and BAI. 1938.  
7228 New York State Dept. of Health, strain 238. 1938. NCTC  
strain 1550. From Belgian hare. J. Path. and Bact., 1929,  
32, 355 and 1935, 41, 203.  
7707 I. Danielson, Lederle Labs., Pearl River, N.Y. 1949.  
USDA strain 2050 W.J.H., Type I. From turkey. Amer. J.  
Vet. Res. 1943, 4, 110.  
7773 Bureau of Animal Industry, USDA, strain S-4212. 1940.  
7960 AMC. 1941.  
7986 H.W. Schoening, strain 11-A, USDA. 1941.  
7987 H.W. Schoening, USDA. 1941.  
8369 I. Danielson, strain 310, Type I, Lederle Labs., Pearl  
River, N.Y. 1949.  
8747 J. Hemphill, strain 31, Type I, Lederle Labs., Pearl  
River, N.Y. 1951. Amer. J. Vet. Res. 1943, 4, 110.  
9656, 9657, 9658 and 9659 H.W. Schoening, strains Goat S-1,  
Sheep 11A-N, 590-L and Calf B-44, USDA. 1945.  
10544 C.S. Culbertson, South Bend Med. Foundation, Inc. 1948.  
From sputum.  
11039 H.W. Johnson, strain X73, 7256, USDA. 1951. From  
domestic fowl.

### Pasteurella pestis (Lehmann and Neumann) Holland

- 87 NIH, strain 125 Bombay. 1944.  
6386 NIH, strain B-126. 1938.

### Pasteurella pneumotropica Jawetz

- 12555 R.G. Wyllie, strain C57, Univ. of Melbourne, Australia.  
1956. Aust. J. Exptl. Biol. and Med. Sci., 1953, 31, 161.

### Pasteurella pseudotuberculosis (Pfeiffer) Topley and Wilson

- 907, 908, 909, 911, 912 and 913 R.E. Dyer, strains 105, 106, 107,  
109, 110 and 111, Hyg. Lab. 1926. Lister Inst.

## BACTERIA

### Pasteurella pseudotuberculosis (Continued)

- 4284 E.O. Jordan, strain 447, Univ. of Chicago. 1928. Lister Inst. strain Stockholm. Schütze's Group I Type B.  
 6902, 6903, 6904 and 6905 NCTC, strains 1102, 1105, 2476 and 1779. 1938. Schütze's serological types Group I Type A, Group I Type B, Group II Type A and Group II Type B. Arch. Hyg., Berlin, 1928, 100, 181.  
 11960 W.J. Mathey, Univ. of California. 1954.

### Pasteurella tularensis (McCoy and Chapin) Bergey et al.

- 6223 E. Francis, strain B-38, NIH. 1944.

### Pasteurella spp.

- 9973 and 9974 W.R. Hinshaw, strains 55 and 56, Univ. of California, Davis. 1946. Cornell Vet., 1943, 33, 351.

### Pediococcus cerevisiae Balcke

- 8081 B.W. Hammer, strain 32, Iowa State College. 1941. Received as *Streptococcus citrovorus*. J. Biol. Chem., 1948, 176, 165; J. Bact., 1953, 65, 482; J. Biol. Chem., 1949, 177, 533, 545.  
 10791 C.S. Pederson, strain Fl66, New York State Agric. Expt. Sta., Geneva. 1950. Bact. Revs., 1949, 13, 225.

### Peptococcus prevotii (Foubert and Douglas) Douglas

- 9321 (*Micrococcus prevotii*) Margaret Pittman, strain PC 1, NIH. 1958. From human plasma. J. Bact., 1948, 56, 25.

### Photobacterium fischeri Beijerinck

- 7744 (*Achromobacter fischeri*) F.H. Johnson, Princeton Univ. 1943.

### Photobacterium phosphoreum (Cohn) Ford

- 11040 (*Bacterium phosphoreum*) F.H. Johnson, Princeton Univ. 1951.

### Propionibacterium arabinosum Hitchner

- 4965 E.R. Hitchner, Univ. of Maine. 1934. J. Bact., 1934, 28, 473.

### Propionibacterium freudenreichii van Niel

- 6207 R.P. Tittsler, strain 53-W of Werkman, USDA. 1943. E.R. Hitchner strain 33. Production of vitamin B<sub>12</sub>.

### Propionibacterium jensenii van Niel

- 4867, 4868 and 4869 C.B. van Niel, strains 24, 29 and 1, Hopkins Marine Station, Pacific Grove, Calif. 1933. Strains 24 and 29, from buttermilk; strain 1, from Gouda cheese.

### Propionibacterium pentosaceum van Niel

- 4875 C.B. van Niel, strain 4. 1933. From Emmenthaler cheese.

### Propionibacterium peterissonii van Niel

- 4870 C.B. van Niel, strain 20. 1933. From Emmenthaler cheese.

### Propionibacterium rubrum van Niel

- 4871 C.B. van Niel, strain 23. 1933. From buttermilk.

### Propionibacterium shermanii van Niel

- 8262 R.P. Tittsler, strain 62, USDA. 1941.  
 9614, 9615, 9616 and 9617 R.J. Williams, strains Ell.1, Ell.2, Ell.3 and El2.1, Univ. of Texas. 1944. C.B. van Niel.

### Propionibacterium thoenii van Niel

- 4872 and 4874 C.B. van Niel, strains 19 and 15, Hopkins Marine Station, Pacific Grove, Calif. 1933. From Emmenthaler cheese.

### Propionibacterium zeae Hitchner

- 4964 E.R. Hitchner, Univ. of Maine. 1934. J. Bact., 1934, 28, 473.

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### Protaminobacter alboflavus den Dooren de Jong

- 8458 NCTC, strain 2875. 1942. L.E. den Dooren de Jong.  
Protaminophagous bacterium. Zblt. Abl. Bakt. II Abt.,  
1927, 71, 193.

### Protaminobacter ruber den Dooren de Jong

- 8457 NCTC, strain 2879, 1942. L.E. den Dooren de Jong. Protamin-  
ophagous bacterium. Zblt. Abl. Bakt. II Abt., 1927, 71, 193.

### Proteus americanus Pacheco

- 4675 G. Pacheco, Inst. Biologico, São Paulo, Brazil. 1930.

### Proteus ammoniae Magath

- 4630 Durand Hospital, Chicago. 1929. From brain abscess.  
7002 F.S. Orcutt, Virginia Polytech. Inst., Blacksburg. 1938.  
From urine.

### Proteus inconstans (Ornstein) Shaw and Clarke

- 12013 (Providence Group) CDC, strain 1721. 1955. Carries  $\alpha$   
antigen.

### Proteus mirabilis Hauser

- 9921 C.A. Stuart, Brown Univ. 1945. J. Bact., 1945, 49, 419.  
12453 C.A. Stuart, strain D1. 1956. Forssmann antigen.

#### XK strains

- 7975 R.P. Miller, strain 757 (O form), NIH. 1941.  
8259 N.H. Topping, strain Kingsbury B757 (H form), NIH. 1941.  
10005 A. Abrams, strain 40-B-1 (H form), AMC. 1946.

### Proteus morganii (Winslow et al.) Rauss

- 8019 M.J. Pelczar, strain 21, State Univ. of Iowa. 1941. K.F.  
Rauss strain 23. J. Bact., 1941, 41, 39.  
8076a to 8076d M.J. Pelczar, strains M 1 (NCTC 2815), M 2 (NCTC  
2818), M 3 (NCTC 679) and M 4 (NCTC 417). 1941. J. Path.  
Bact., 1929, 32, 79.  
8076e to 8076h M.J. Pelczar, strains M 6 (NCTC 1707), M 7  
(NCTC 1709), M 8 (NCTC 2817) and M 11 (NCTC 235). 1941.  
J. Path. Bact., 1929, 32, 79.  
9237 O. Felsenfeld, strain M685, Dept. of Public Welfare,  
Chicago, Ill. 1943. From food poisoning.  
9916 and 9917 C.A. Stuart, H and O forms, Brown Univ. 1945.  
J. Bact., 1945, 49, 419.

### Proteus paraamericanus Magalhães and Aragão

- 6059 M. Magalhães, Raul Leite Labs., Rio de Janeiro. 1937.  
Brasil Medico, Nov., 1933, p. 815.

### Proteus rettgeri (Hadley et al.) Rustigian and Stuart

- 9250 O. Felsenfeld, Dept. Publ. Welfare, Springfield, Ill. 1943.  
From human dysentery case.  
9918 and 9919 C.A. Stuart, H and O forms, Brown Univ. 1945.  
J. Bact., 1945, 49, 419.

### Proteus vulgaris Hauser

- 4669 R. Müller, strain 172569, Hygienischen Inst., Kohn-  
Lindenthal, Germany. 1930. Zblt. Bakt. Abt. I, 1930, 115, 462.  
8427 Georgetown University. 1942. From inner ear infection.  
9920 C.A. Stuart, H form, Brown Univ. 1945. J. Bact., 1945, 49,  
419.  
12454 C.A. Stuart, O form. 1956. Nonmotile.

## BACTERIA

### Proteus vulgaris (Continued)

#### X19 strains

- 881 Hyg. Lab. 1926. H form.  
6380 M.J. Pelczar, Univ. of Maryland. 1938. O form. Minnesota State Health Labs.  
9484 C.P. Hegarty, Georgetown Univ. 1944. O form.

#### X2 strains

- 6897 NCTC, strain 3307, H form. 1938. From Weil and Felix, 1915. Wiener klin. Wochenschr., 1916, 29, 33.  
7829 NIH. 1940. O form.

#### XL strain

- 6896 NCTC, strain 4636, H form. 1938. From A. Felix, Lister Inst.

Providence Group: See *Proteus inconstans*

### Pseudomonas acris (Ark) Starr and Burkholder

- 10853 B.A. Friedman, USDA, New York, N.Y. 1951. W.H. Burkholder strain PA1.

### Pseudomonas aeruginosa (Schroeter) Migula

- 7700 and 7701 W.C. Fobier, strains 140 and 141, American Cyanamid Company, Stamford, Conn. 1946. Highly proteolytic. J. Bact., 1946, 52, 685.  
8689 and 8707 D.R. Coburn, strains 668 and 604, USDI. 1942.  
8709 AMC, strain 25-A-2. 1942.  
9027 C.P. Hegarty, Georgetown Univ. 1943.  
9721 N.R. Smith, strain 112, USDA. 1945.  
10145 F. Kavanagh, New York Botanical Garden. 1946. Antibiotic testing.  
10197 L.H. Schwarz and J.A. Lazarus, strain P7, New York City. 1947.

### Pseudomonas alcaligenes

- 12815 R. Hugh, strain 187-10, Cancer Clinic, George Washington Univ. 1957. From buccal cavity.

### Pseudomonas alliicola (Burkholder) Starr and Burkholder

- 10854 B.A. Friedman, USDA, New York, N.Y. 1951. From onion.

### Pseudomonas apii Jagger

- 8722 and 9654 W.H. Burkholder, strains PJ1 and PJ2, Cornell Univ. 1942 and 1944. From celery.

### Pseudomonas aptata (Brown and Jamieson) Stevens

- 10205 (*Phytomonas aptata*) P.A. Ark, Univ. of California, Berkeley. 1946. From sugar beet.

### Pseudomonas asplenii (Ark and Tompkins) Săvulescu

- 10203 (*Phytomonas aspleni*) P.A. Ark, Univ. of California. 1946. From bird's nest fern. Phytopath., 1946, 36, 758.  
10855 B.A. Friedman, USDA, New York, N.Y. 1951. W.H. Burkholder strain PA17.

### Pseudomonas atrofaciens (McCulloch) Stevens

- 9004 W.H. Burkholder, strain PA13, Cornell Univ. 1942.

### Pseudomonas azotocolligans Anderson

- 12417\* G.R. Anderson, Univ. of Idaho. 1955. J. Bact., 1955, 70, 129.



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### Pseudomonas barkeri (Berridge) Clara

- 6876 (*Bacterium barkeri*) NCTC, strain 393. 1938. B.T.P.  
Barker. From pear blossom blight. Ann. Appl. Biol., 1918,  
5. 62.

### Pseudomonas caryophylli (Burkholder) Starr and Burkholder

- 11441 W.F. Jeffers, Univ. of Maryland. 1953. From carnation wilt.

### Pseudomonas cattleyae (Pavarino) Săvulescu

- 10200 P.A. Ark, Univ. of California, Berkeley. 1946. Received as  
*Phytomonas cattleyae*. NRRL strain B-732. From diseased  
leaf of *Cattleyae* sp. Phytopath., 1946, 36, 695.

### Pseudomonas cepacia Burkholder

- 10656 B.A. Friedman, USDA, New York, N.Y. W.H. Burkholder.

### Pseudomonas chlororaphis (Guignard and Sauvageau) Bergey et al.

- 9446 and 9447 NRRL, strains B-560 and B-561. 1948.

### Pseudomonas cichorii (Swingle) Stapp

- 10857 B.A. Friedman, USDA, New York, N.Y. 1951. W.H. Burkholder strain PCL.

### Pseudomonas coronafaciens (Elliott) Stevens

- 9005 W.H. Burkholder, strain PC17, Cornell Univ. 1942.

### Pseudomonas delphinii (Smith) Stapp

- 8719 W.H. Burkholder, strain PD1, Cornell Univ. 1942.

### Pseudomonas denitrificans Bergey et al.

- 12133 WRRRL. 1955. L.E. Sacks.

### Pseudomonas diminuta Leifson

- 11568 E. Leifson, Loyola Univ. 1953.

### Pseudomonas elongata Humm

- 10144 H.S. Levinson, Philadelphia Quartermaster Depot. 1946.  
H.J. Humm. Liquefies agar.

### Pseudomonas excubis Steinhaus

- 12293\* E.A. Steinhaus, strain 20-3-1, Univ. of California, Berkeley.  
1955. From gastric caeca of cactus bug.

### Pseudomonas flectens Johnson

- 12775\* J.C. Johnson, strain 12339, Dept. Agric. and Stock, Brisbane.  
From French beans. Queensland J. Agric. Sci., Sept. 1956.

### Pseudomonas fluorescens Migula

- 948 M. Levine, strain 1013, Iowa State College. 1926. Oxidizes  
potassium gluconate to 2-keto gluconate. NRRL, B-10.  
949 M. Levine, strain 1062, Iowa State College. 1926. Iowa Eng.  
Expt. Sta. Bull. 77, 1926.  
10796 S.A. Waksman, strain 68, Rutgers Univ. 1950. Used in test-  
ing sensitivity of streptothricin. J. Bact., 1943, 46, 299.  
11172 NCIB, strain 8251. 1952. W.C. Evans, Univ. College of  
Wales, Bangor. Utilizes p-cresol.  
11250 O. Hayashi, strain Tr 23, NIH. 1952. J. Bact., 1951, 62,  
691.  
11252 and 11253 Elizabeth Verder, NIH. 1952. NRRL, strains B-334  
and B-1244.  
12121 S.C. Rittenberg, strain P-6, Univ. of S. California. 1955.  
12633 A.B. Pardee, strain A.3.12, Univ. of California, Berkeley.  
1956. R.Y. Stanier. Degradation of aromatic acids.

## BACTERIA

Pseudomonas fragi (Eichholz) Huss emend. Hussong et al.

4973 B.W. Hammer, Iowa State College. 1935.

Pseudomonas glycinea Coerper

5727 (*Phytomonas glycinea*) W.H. Burkholder, strain PG2,  
Cornell Univ. 1942. From soybean.

Pseudomonas graveolens Levine and Anderson: See *Pseudomonas*  
*taetrolens*

Pseudomonas haemorrhagiae Castellani

10752 A. Castellani, strain 2, Inst. de Med. Trop., Lisbon. 1949.  
From haemolytic ulcer. Bact. Proc. S.A.B., 1950, p. 60.

Pseudomonas hydrophila (Chester) Bergey et al.: See *Aeromonas*  
*hydrophila*

Pseudomonas indologens Gray

9355 P.H.H. Gray, McGill Univ., Montreal. 1947. Proc. Roy.  
Soc., B, 1928, 102, 263.

Pseudomonas iodinum (Davis) Tobie

9897 W.C. Tobie, American Cyanamid Co., Stamford, Conn.  
1945. H. McIlwain. Production of iodinin. Zblt. Bakt. Abt.  
II, 1939, 100, 273.

Pseudomonas lachrymans (Smith and Bryan) Carsner

7386 P.A. Ark, Univ. of California, Berkeley. 1938. From  
cucumber leaves.

11921 M.A. Smith, USDA. 1954. From squash.

11965 S.P. Doolittle, strain 6, USDA. 1954. From cucumber.

Pseudomonas lapsa (Ark) Starr and Burkholder

10859 B.A. Friedman, USDA, New York, N.Y. 1951. W.H. Burk-  
holder strain P22.

Pseudomonas lindneri Kluyver and Hoppenbrouwers. See *Zymomonas*  
*mobilis*

Pseudomonas maculicola (McCulloch) Stevens

11781 M.A. Smith, USDA. 1954.

Pseudomonas maculifolium-gardeniae Ark: See *Xanthomonas*  
*maculifoliigardeniae*

Pseudomonas mangiferaeindicae Patel et al.

11637 M.P. Starr, strain PM, Univ. of California, Davis. 1953.  
M.K. Patel, strain 18. From *Mangifera indica*. Indian  
Phytopath., 1948, 1, 147.

Pseudomonas marginalis (Brown) Stevens

10844 B.A. Friedman, strain CIBP, USDA, New York, N.Y. 1951.  
From endive.

10858 B.A. Friedman, USDA. 1951.

Pseudomonas marginata (McCulloch) Stapp

10247 and 10248 (*Phytomonas marginata*) Lucia McCulloch, strains  
Col. R and Col. 3, USDA. 1947. From gladiolus.

Pseudomonas mildenbergii Bergey et al.

795 (*Pseudomonas cyanogena*) B.W. Hammer, Iowa State College.  
1926. From blue milk. Iowa Agric. Expt. Sta. Res. Bull. 15,  
1914.

Pseudomonas mucidolens Levine and Anderson

4585 and 4586 W.E. Burns, strains 37 and 44, Iowa State College.  
1930. J. Bact., 1932, 23, 337.

## BACTERIA

### Pseudomonas oleovorans Lee and Chandler

8062 A.C. Chandler, Rice Inst. 1941. J. Bact., 1941, 41, 373.

### Pseudomonas ovalis Chester

950 M. Levine, strain 2075 (1), Iowa State College. 1926. From creamery waste. Iowa Eng. Expt. Sta. Bull. 77, 1926.

8209 N.R. Smith, strain 77, USDA. 1941. Production of ketogluconic acid.

### Pseudomonas oxalaticus Khambata and Bhat

11451 and 11452 NCIB, strains Ox<sub>4</sub> and Ox<sub>6</sub>. 1953. J. Bact., 1953, 66, 505.

11883 and 11884 J.V. Bhat, strains Ox<sub>1</sub> and Ox<sub>23</sub>, Indian Inst. of Sci., Bangalore. 1954.

### Pseudomonas papulans Rose

7389 M.P. Starr, Univ. of California, Davis. 1953. Burkholder strain PP4.

### Pseudomonas pavonacea Levine and Soppeland

951 M. Levine, strain 33(3), Iowa State College. 1926. From creamery waste. Iowa Eng. Expt. Sta. Bull. 77, 1926.

### Pseudomonas perlurida Kellerman et al.

490 (*Cellulomonas perlurida*) N.R. Smith, strain 131, USDA. 1925. From soil.

### Pseudomonas perolens (Turner) Szybalski

10757 (*Achromobacter perolens*) W. Szybalski, Politechnika Gdanska, Poland. 1950. From musty eggs.

### Pseudomonas phaseolicola (Burkholder) Dowson

11355 H.R. Thomas, strain 3035, USDA. 1952. From halo blight of bean plants.

11365 W.H. Burkholder, strain PP7, Cornell Univ. 1952.

### Pseudomonas pisi Sackett

11043 W.H. Burkholder, strain PP6, Cornell Univ. 1951. From pea pods.

11055 M.P. Starr, Univ. of California, Davis, 1951. W.H. Burkholder strain PP1. From pea pods.

### Pseudomonas primulae (Ark and Gardner) Starr and Burkholder

10860 B.A. Friedman, USDA, New York, N.Y. 1951. W.H. Burkholder strain PP3.

### Pseudomonas pseudomallei (Whitmore) Haynes

11666 (*Malleomyces pseudomallei*) R.H. Yager, strain China 3, AMC. 1953.

### Pseudomonas punctata (Zimmermann) Chester: See *Aeromonas punctata*

### Pseudomonas putida (Trevisan) Migula

4359 A. Stewart, Florida State College for Women. 1928.

### Pseudomonas putrefaciens (Derby and Hammer) Long and Hammer

8071, 8072 and 8073 B.W. Hammer, strains 95, 180, and 184. Iowa State College. 1941.

### Pseudomonas riboflavina Foster

9526 J.W. Foster, strain 4R3337, Merck and Co., Inc., Rahway, N.J. 1944. Oxidation of riboflavin to lumichrome. J. Bact., 1944, 47, 27.

### Pseudomonas rubescens Pivnick

12099 H. Pivnick, Univ. of Nebraska. 1955. From oil emulsion in machine shop. Bact. Proc., 1954, p. 42.

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Pseudomonas rubrilineans (Lee et al.) Dowson: See Xanthomonas rubrilineans

Pseudomonas saccharophila Doudoroff

9114 NRRL, strain B-1492. 1954. M. Doudoroff. *Enzymologia*, 1940, 9, 59; *Arch. Biochem.*, 1947, 14, 29.

Pseudomonas solanacearum (Erw. Smith) Erw. Smith

9910 T.E. Smith, USDA, Oxford, N.C. 1945. From tobacco.

10692 A. Kelman, strain 3-1A, North Carolina State College. 1949. From tomato.

11696 and 11697 A. Kelman, strains 60-1 and 60-4. 1953.

Pseudomonas stizolobii (Wolf) Stapp

12636 and 12637 W.H. Burkholder, strains PS23 and PS25, Cornell Univ. 1956. From white clover leaf and velvet bean.

Pseudomonas striafaciens (Elliott) Starr and Burkholder

10730 W.H. Burkholder, strain PS1, Cornell Univ. 1949.

Pseudomonas stutzeri (Lehmann and Neumann) Kluyver

11607 C.B. van Niel, strain M.D.41.1, Hopkins Marine Station. 1953. *J. Bact.*, 1952, 64, 413.

Pseudomonas suis Woods

11729 Gladys M. Woods. Boynton strain 201-8, Univ. of California, Davis. 1954. From croupous pneumonia of swine.

Pseudomonas syncyanea (Ehrenberg) Migula

9979 W.C. Tobie, American Cyanamid Company, Stamford, Conn. 1946. A.J. Kluyver.

Pseudomonas synxantha (Ehrenberg) Holland (*Flavobacterium synxanthum*)

796 B.W. Hammer, Iowa State College. 1926. From milk. Iowa Agric. Expt. Sta. Res. Bull. No. 20.

9890 R.S. Breed, Cornell Univ. 1945. Cause of yellow color in cream. B.W. Hammer. Iowa State Coll. Bull. 15, 1915.

Pseudomonas syringae van Hall

825 C.L. Shear, strain 4127, USDA. 1926. Received as *Bacterium holci*. J.B. Kendrick. From Sudan grass.

7432 P.A. Ark, Univ. of California, Berkeley. 1938. Received as *Phytomonas cerasi* var. *prunicola*. From apricot bud.

12271 and 12326 W.H. Burkholder, strains PS2 and PS11, Cornell Univ. 1955.

12273 and 12274 W.H. Burkholder, strains PS20 and PS21, Cornell Univ. 1955. From lilac and pear blossom.

Pseudomonas tabaci (Wolf and Foster) Stevens

11527 and 11528 W.D. Valleau, strains 16.1 and 18.2, Univ. of Kentucky. 1953.

Pseudomonas taetrolens Haynes

4053 and 4084 (*Pseudomonas graveolens*) W.E. Burns, strains 1 and 53, Iowa State College. 1930. *J. Bact.*, 1932, 23, 343.

Pseudomonas testosteroni Talalay

11996\* P. Talalay, Univ. of Chicago. 1955.

Pseudomonas tolaasii Paine

10528 W.J. Dowson, strain 69, Cambridge Univ., England. 1956.

Pseudomonas tomato (Okabe) Alstatt

10862 B.A. Friedman, USDA, New York City. 1951. W.H. Burkholder strain PT7.



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### Pseudomonas turbinellae

- 12446 S.R. Venkataraman, strain Ch33FTS, Fisheries Tech. Sta., Kozhikode-1, S. India. 1956.

### Pseudomonas tuticorinensis

- 12230 S.R. Venkataraman, strain Sd21FTS, Fisheries Tech. Sta., S. India. 1955.

### Pseudomonas viridilivida (Brown) Holland

- 512 (Bacterium viridilividum) L.A. Rogers, USDA. 1925. Nellie A. Brown. From diseased lettuce. J. Agric. Res., 1915, 4, 476.

### Pseudomonas vitiswoodrowii Patel and Kulkarni

- 11636 M.P. Starr, strain PV, Univ. of California, Davis. 1953.  
M.K. Patel, strain 19. From Vitis woodrowii. Current Sci., 1951, 20, 132.

### Pseudomonas woodsii (Erw. Smith) Stevens

- 9655 W.H. Burkholder, strain PW3, Cornell Univ. 1944. From carnation.

### Pseudomonas xanthae Zettnow

- 8375 G.L. Stahly, strain 3, Ohio State Univ. 1942. C.F. Kelly.

### Pseudomonas spp.

- 9229 and 9230 W.A. Randall, strains M-27 and M-69, FDA. 1943. Preparation of pyrogens.  
10838 S.H. Hutner, Haskins Lab., New York, N.Y. 1951. A. Schatz. Requires quinolinic acid; oxidizes nicotinic acid. Bact. Proc., S.A.B., 1950, p. 140.  
11150 A. Goldstein, Pharmakol. Inst., Bern. 1952. From fermenting cucumber.  
11299a O. Hayaishi, strain Tr. No. 6, NIH. 1952. Oxidizes tryptophane via the quinoline pathway.  
11922 K. Yamasaki, strain 41, Central Res. Inst., Tokyo. 1954. Utilizes nicotine as carbon and nitrogen source. J. Amer. Chem. Soc., 1954, 76, 155.  
12085 NCIB, strain 8668. 1955. Halophilic. Proc. Japanese Acad., 1954, 30, 113.  
12443 S.R. Venkataraman, strain ChF, Fisheries Tech. Sta., S. India. 1955. Chitin digesting and denitrifying strain.

### Rhizobium japonicum (Kirchner) Buchanan

- 10323 L.W. Erdman, strain 3I1b56, USDA. 1948. For soybean (Glycine hispida).  
10324 L.W. Erdman, strain 3I1b6. 1948. For soybean (Glycine hispida). K. Aso, Imperial Univ., Tokyo.

### Rhizobium leguminosarum Frank emend. Baldwin and Fred

- 4404 E.B. Fred, strain Pea 302, Univ. of Wisconsin. 1929.  
7026 W.B. Sarles, strain 326, Univ. of Wisconsin. 1938.  
10004 L.W. Erdman, strain 3HOq18, USDA. 1946. For peas (Pisum sativum) and vetch (Vicia villosa).  
10314 L.W. Erdman, strain 3HOcl. 1948. For peas (Pisum sativum) and vetch (Vicia villosa).

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### Rhizobium lupini (Schroeter) Eckhardt et al.

- 10033 L.W. Erdman, strain 3C2k2, USDA. 1946. Univ. of Wisconsin strain 804.  
10318 L.W. Erdman, strain 3C2d2. 1948. For yellow lupines (*Lupinus luteus*).  
10319 L.W. Erdman, strain 3C2e1. 1948. For lupine (*Lupinus angustifolius*).

### Rhizobium meliloti Dangeard

- 4399, 4400 and 4401 E.B. Fred, strains Alfalfa 100, Alfalfa 109 and Alfalfa 129, Univ. of Wisconsin. 1929.  
7022 W.B. Sarles, strain 158, Univ. of Wisconsin. 1938.  
9930 N.R. Smith, strain 3DOa2, USDA. 1945. For alfalfa (*Medicago sativa*) and sweet clover (*Melilotus alba*).  
10310 L.W. Erdman, strain 3DOd4, USDA. 1948. For California bur clovers (*Medicago hispida*).  
10311 L.W. Erdman, strain 3DOa15. 1948. For alfalfa (*Medicago sativa*) and sweet clover (*Melilotus alba*).  
10312 L.W. Erdman, strain 3DOa5, USDA. 1948. E.B. Fred strain 101. For alfalfa (*Medicago sativa*) and sweet clover (*Melilotus alba*).

### Rhizobium phaseoli Dangeard

- 4406 E.B. Fred, strain Bean 403, Univ. of Wisconsin. 1929.  
7027 W.B. Sarles, Wisconsin strain 414, Univ. of Wisconsin. 1938.  
10321 and 10322 L.W. Erdman, strains 3I6c2 and 3I6c8, USDA. 1948. For garden beans (*Phaseolus vulgaris*).

### Rhizobium trifolii Dangeard

- 876 E.B. Fred, strain 54, Univ. of Wisconsin. 1926. A. L. Whiting. For red clover.  
4402 and 4403 E.B. Fred, strains Clover 203 and Clover 204, Univ. of Wisconsin. 1929.  
7023 L.W. Erdman, strain 3D1k20, USDA. 1948. Univ. of Wisconsin strain 209. J. Bact., 1942, 43, 336.  
7025 W.B. Sarles, strain Clover 239, Univ. of Wisconsin. 1938.  
9928 N.R. Smith, strain 3D1k13, USDA. 1945. For *Trifolium* clovers.  
10140 W.B. Sarles, strain 205, Univ. of Wisconsin. 1946. J. Bact., 1942, 43, 329.  
10327 L.W. Erdman, strain 3D1q9, USDA. 1948. L. T. Leonard. For crimson clover (*Trifolium incarnatum*).  
10328 L.W. Erdman, strain 3D1k5. 1948. For red clover (*Trifolium pratense*) and white clover (*Trifolium repens*).

### Rhizobium spp.

- 9931 L.W. Erdman, strain 3I6n8, USDA. 1948. L. T. Leonard. For cowpeas (*Vigna sinensis*).  
10034 L.W. Erdman, strain 3F2b2. 1948. For foxtail dalea (*Dalea alopecuroides*).  
10244 L.W. Erdman, strain 3I6d3. 1947. For lima beans (*Phaseolus lunatus*).  
10315 L.W. Erdman, strain 3G5j8, USDA. 1948. L. T. Leonard. For *Sericea lespedeza* (*Lespedeza sericea*).

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### Rhizobium spp. (Continued)

- 10316 L. W. Erdman, strain 3Clal. 1948. W.B. Sarles. For guar (*Cyamopsis tetragonoloba*) and *Crotalaria*.
- 10317 L. W. Erdman, strain 3I2bl. 1948. O.N. Allen, Univ. of Hawaii strain 36-1. For guar (*Cyamopsis tetragonoloba*) and peanuts (*Arachis hypogaea*).
- 10320 L. W. Erdman, strain 3F4b3. 1948. R.H. Walker. For black locust (*Robinia pseudoacacia*). J. Amer. Soc. Agron., 1936, 28, 28.
- 10325 L. W. Erdman, strain 3EOc4. 1948. For big trefoil (*Lotus uliginosis*).
- 10326 L. W. Erdman, strain 3EOa5. 1951. L.T. Leonard. For birdsfoot trefoil (*Lotus corniculatus*).
- 10703 L. W. Erdman, strain 3G5i7. 1949. For Korean lespedeza (*Lespedeza stipulaceae*) and *Sericea lespedeza* (*Lespedeza sericea*).
- 10805 L. W. Erdman, strain 3I5bl. 1950. From *Cajanus indicus*.
- 10806 L. W. Erdman, strain 3I6o2. 1950. From *Dolichos lablab*.
- 10807 L. W. Erdman, strain 3I4a4. 1950. From *Pueraria phaseoloides*.
- 10845 L. W. Erdman, strain 3G2C3(a). 1951. From sanfoin (*Onobrychis sativa*).
- 11119 L. W. Erdman, strain 3I7al. 1952. From *Alysicarpus vaginalis*.
- 11444 L. W. Erdman, strain 3HOal. 1953. From *Cicer arietinum*.
- 11445 L. W. Erdman, strain 3076. 1953. From *Albizia julibrissin*.
- 11446 L. W. Erdman, strain 1AOcl. 1953. From *Acacia linifolia*.
- 11447 L. W. Erdman, strain 3I2bl. 1953. From *Erythrina indica*.
- 11448 L. W. Erdman, strain 3I2cl. 1953. From *Erythrina reticulata*.

### Rhodopseudomonas capsulata (Molisch) van Niel

- 11166 NCIB, strain 8286. 1952. C.B. van Niel, strain ATH.231, Hopkins Marine Station.

### Rhodopseudomonas gelatinosa (Molisch) van Niel

- 11169 NCIB, strain 8290. 1952. C.B. van Niel, strain ATC.221, Hopkins Marine Station.

### Rhodopseudomonas palustris (Molisch) van Niel

- 11168 NCIB, strain 8288. 1952. C.B. van Niel, strain ATH.216, Hopkins Marine Station.

### Rhodopseudomonas spheroides van Niel

- 11167 NCIB, strain 8287. 1952. C.B. van Niel, strain ATH.241.

### Rhodospirillum rubrum (von Esmarch) Molisch

- 277 E.O. Jordan, Univ. of Chicago. 1925.
- 9791 O.B. Williams, Univ. of Texas. 1952.
- 11170 NCIB, strain 8255. 1952. S.R. Elsdon strain S.1. C.B. van Niel.

### Salmonella abortusovae (Good and Corbett) Bergey et al. 4, 12: 1-2, n, x

- 9842 AMC, strain ETS 26. 1945.

### Salmonella arizona Kauffmann: See *Paracolonobacterium arizonae*

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## Salmonella asiaticus Castellani and Chalmers

11810 A. Castellani, Inst. de Med. Trop., Lisbon. 1954.

## Salmonella choleraesuis (Smith) Weldin 6, 7:c:1, 5

7001 F.S. Orcutt, Virginia Polytech. Inst., Blacksburg. 1938.

10708 AMC, strain ETS 34. 1949. Germicide testing.

## Salmonella choleraesuis var. kunzendorf Schütze et al. 6, 7:(c):1, 5

6958 NCTC, strain 1710. 1938. Brit. Med. Jour., 1923, ii, 105.

12011 CDC, strain (5210) (37). 1955.

## Salmonella columbensis (Castellani) Castellani and Chalmers

10753 A. Castellani, Inst. de Med. Trop., Lisbon. 1949.

## Salmonella enteritidis (Gaertner) Castellani and Chalmers 1, 9, 12:g, m:-

13076 CDC, strain K-1891. 1958.

## Salmonella gallinarum (Klein) Bergey et al. 1, 9, 12:-:-

9184 W.W. Umbreit, Univ. of Wisconsin. 1943.

## Salmonella paratyphi (Kayser) Castellani and Chalmers 1, 3, 12:a:-

9150 O. Felsenfeld, Chicago State Hospital. 1943.

9281 AMC, strain HA-6-41-N-22. 1944.

11737 AMC, strain 41-N-1. 1954. Kessel strain.

12652 AMC, strain B6617 (ETS 4). 1956.

## Salmonella paratyphi var. durazzo 2, 12:a:-

11511 CDC. 1955.

## Salmonella schottmuelleri (Winslow et al.) Bergey et al. 1, 4, 5, 12:b:1, 2

8759 O. Felsenfeld, Manteno State Hospital, Manteno, Illinois. 1942. From gall bladder.

10719 AMC, strain 41-H-6. 1949. TAB vaccine strain.

11738 AMC, strain 41-H-1. 1954. Rowland strain.

## Salmonella typhimurium (Loeffler) Castellani and Chalmers 1, 4, 5, 12:d:1, 2

6994 F.S. Orcutt, Virginia Polytech. Inst., Blacksburg. 1938. H. Schütze.

7823 D.R. Coburn, strain 1006, USDI, Bowie, Md. 1940.

## Salmonella typhosa (Zopf) White 9, 12, Vi:d:-

167 AMC, strain 42-A-1a, Rawlings. 1955.

6229 AMC, strain 901-H. 1938.

6539 FDA, strain Hopkins 26. 1946. Germicide testing.

7251 AMC, strain 42-A-58. 1944. Also known as Boxhill strain and Panama 58.

9992V AMC, strain Boxhill 58 V. 1949. From strain 42-A-58. Good Vi antigen.

9993 AMC, strain 42-A-63. 1949. Army challenging strain.

9994 AMC, strain 42-A-1d, "Raw Ben." 1954.

10243 W.A. Randall, strain PCI 412, FDA, 1947. Strain ETS 58.

10749 AMC, strain 42-A-504 (Felix O-901). 1949.

11583 AMC, strain ETS 62 (Vi 1 rough). 1953.

11584 AMC, strain ETS 61 (6S rough). 1953.

12839 CDC, strain T2 (Almon and Stovall). 1957.

12840 CDC, strain 2V (Felix). 1957.

## Salmonella spp.

### Serotype abderdeen 11:i:1, 2

9434 AMC, strain ETS 90. 1947.

### Serotype adelaide 35:f, g:-

10718 AMC, strain ETS 170. 1949.



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### Salmonella spp. (Continued)

- Serotype anatum 3, 10:e, h:l, 6  
9270 O. Felsenfeld, strain 5101, Univ. of Chicago. 1943.
- Serotype bareilly 6, 7:y:l, 5  
9115 O. Felsenfeld, Illinois Dept. of Pub. Welfare. 1943.
- Serotype berta 9, 12:f, g, t:—  
8392 P.R. Edwards, strain 69, Univ. of Kentucky. 1942.
- Serotype blegdam 9, 12:g, m, q:—  
12003 CDC. 1955.
- Serotype bonariensis 6, 8:i:e, n, x  
12001 CDC. 1955.
- Serotype bovismoribificans 6, 8:r:l, 5  
9692 O. Felsenfeld, strain 8, Univ. of Chicago. 1945.
- Serotype bredeney 1, 4, 12, 27:l, v:l, 7  
10728 AMC, strain ETS 124. 1949.
- Serotype budapest 1, 4, 12:g, t:—  
11998 CDC. 1955.
- Serotype cerro 18:z<sub>4</sub>, z<sub>23</sub>:—  
10723 AMC, strain ETS 100. 1949
- Serotype champaign 39:k:l, 5  
9779 AMC, strain 111.268. 1945.
- Serotype chester 4, 5, 12:e, h:e, n, x  
11997 CDC. 1955.
- Serotype chittagong (1), 3, 10, (19):b:z<sub>35</sub>  
12005 CDC. 1955.
- Serotype cubana 1, 13, 23:z<sub>29</sub>:—  
12007 CDC. 1955.
- Serotype daressalaam 1, 9, 12:l, w:e, n  
6959 NCTC, strain 2206. 1938. System of Bact., M.R.C., 1929,  
4, 86.
- Serotype derby 1, 4, 12:f, g:—  
6960 NCTC, strain 1720. 1938. J. Hyg., 1923, 22, 69.
- Serotype dublin 1, 9, 12:g, p:—  
979 J.H. Harvey Pirie, S. African Inst. Med. Res., Johannesburg.  
1927.
- Serotype eastbourne 1, 9, 12:e, h:l, 5  
8398 P.R. Edwards, strain 70, Univ. of Kentucky. 1942.
- Serotype essen 4, 12:g, m:—  
6961 NCTC, strain 4781. 1938. F. Kauffmann, strain 173.
- Serotype florida (1), 6, 14, 25:d:l, 7  
10727 AMC, strain ETS 162. 1949.
- Serotype gaminara 16:d:l, 7  
8324 P.R. Edwards, Univ. of Kentucky. 1941. ISC strain 974(96).
- Serotype give 3, 10:l, v:l, 7  
9268 O. Felsenfeld, strain 3019, Univ. of Chicago. 1943.
- Serotype grumpensis 13, 23:d:l, 7  
12006 CDC. 1955.
- Serotype hartford 6, 7:y:e, n, x  
11915 CDC. 1954.
- Serotype heidelberg 4, 5, 12:r:l, 2  
8326 P.R. Edwards, Univ. of Kentucky. 1941. ISC strain 16.

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### Salmonella spp. (Continued)

Serotype illinois (3), (15), 34:z<sub>10</sub>:1, 5

11646 CDC. 1953

Serotype inverness 38:k:1, 6

10720 AMC, strain ETS 171. 1949.

Serotype javiana 1, 9, 12:l, z<sub>28</sub>:1, 5

10721 AMC, strain ETS 146. 1949

Serotype kentucky (8)20:i:z<sub>6</sub>

9263 O. Felsenfeld, strain 4139, Chicago Medical School. 1943.

Serotype kirkee 17:b:1, 2

8322 P.R. Edwards, Univ. of Kentucky. 1941. ISC strain 97.

9146 O. Felsenfeld, Chicago State Hospital. 1943.

Serotype kottbus 6, 8:e, h:1, 5

8399 P.R. Edwards, strain 4179, Univ. of Kentucky. 1942. ISC.

Serotype london 3, 10:l, v:1, 6

8389 P.R. Edwards, strain 1446. 1942. ISC

Serotype minnesota 21:b:e, n, x

9700 O. Felsenfeld, strain 24, Chicago Med. School. 1945.  
Michigan Dept. of Health.

Serotype montevideo 6, 7:g, m, s:—

8387 P.R. Edwards, strain 623, Univ. of Kentucky. 1942. ISC.

9188 O. Felsenfeld, strain 318, Illinois Dept. of Pub. Welfare.  
1943.

Serotype moscow 9, 12:g, q:—

6999 F.S. Orcutt, Virginia Polytech. Inst., Blacksburg. 1938.

Serotype muenchen 6, 8:d:1, 2

8388 P.R. Edwards, strain 54, Univ. of Kentucky. 1942. ISC.

9266 O. Felsenfeld, strain 3001, Chicago Med. School. 1943.

Serotype muenster 3, 10:e, h:1, 5

8395 P.R. Edwards, strain 4546, Univ. of Kentucky. 1942. ISC.

Serotype newington 3, 15:e, h:1, 6

8760 O. Felsenfeld, Manteno State Hospital, Illinois. 1942.

Serotype newport 6, 8:e, h:1, 2

6962 NCTC, strain 129. 1938. From fatal case of food poisoning.  
Lancet, 1920, i, 93.

10726 AMC, strain ETS 51, phase 2. 1949.

Serotype onderstepoort (1), 6, 14, 25:e, h:1, 5

9189 O. Felsenfeld, Illinois Dept. of Pub. Welfare. 1943. McD.  
Fulton, Texas Salmonella Center.

Serotype oranienburg 6, 7:m, t:—

9239 O. Felsenfeld, strain E1093. 1943.

9265 O. Felsenfeld, strain 2710. 1943.

Serotype orientalis 16:k:e, n, z<sub>15</sub>

10724 AMC, strain ETS 211. 1949.

Serotype panama 1, 9, 12:l, v:1, 5

7378 F. Schiff, Hochberg strain 2460, Beth Israel Hosp., New  
York, N.Y. 1938.

7379 F. Schiff, Steinberg strain 9708. 1938.

Serotype pomona 28:y:1, 7

10729 AMC, strain ETS 169. 1949.

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### Salmonella spp. (Continued)

- Serotype potsdam 6, 7:l, v:e, n, z<sub>15</sub>  
 8397 P.R. Edwards, strain 9781, Univ. of Kentucky. 1942. ISC.
- Serotype pretoria 11:k:l, 2  
 9705 O. Felsenfeld, strain 41, Chicago Medical School. 1945.  
 P.R. Edwards.
- Serotype pullorum 9, 12:-:-  
 9120 O. Felsenfeld, Illinois Dept. of Pub. Welfare. 1943.  
 9185 O. Felsenfeld, strain E2. 1943.  
 10398 M.L. Wright, strain OAC-27, Ontario Agric. Coll., Guelph.  
 1948. J. Amer. Vet. Med. Assn., 1948, 112, 241.
- Serotype reading 4, 12:e, h:l, 5  
 6967 NCTC, strain 1878. 1938.
- Serotype riogrande 40:b:l, 5  
 12008 CDC. 1955.
- Serotype rostock 1, 9, 12:g, p, u:-  
 6997 F.S. Orcutt, Virginia Polytech. Inst., Blacksburg. 1938.  
 NCTC.
- Serotype rubislaw 11:r:e, n, x  
 10717 AMC, strain ETS 102. 1949.
- Serotype saintpaul 1, 4, 5, 12:e, h:l, 2  
 9712 O. Felsenfeld, strain 127, Chicago Med. School. 1945.  
 Isolated from cystitis.
- Serotype salinatis 4, 12:d, e, h:d, e, n, z<sub>15</sub>  
 9191 O. Felsenfeld, Illinois Dept. of Pub. Welfare. McD. Fulton,  
 Texas Salmonella Center. 1943.
- Serotype schleissheim 4, 12, 27:b, z<sub>12</sub>:-  
 12000 CDC. 1955.
- Serotype selandia 3, 15:e, h:l, 7  
 8325 P.R. Edwards, Univ. of Kentucky. 1941. ISC strain 7480 (85).
- Serotype sendai 1, 9, 12:a:l, 5  
 8393 P.R. Edwards, strain 571, Univ. of Kentucky. 1942. ISC.  
 9262 O. Felsenfeld, strain 3275, Chicago Medical School. 1943.  
 Florida Board of Health.
- Serotype senftenberg 1, 3, 19:g, s, t:-  
 8400 P.R. Edwards, strain 3007, Univ. of Kentucky. 1942. ISC.  
 9530 J.V. Falisi, Seventh Service Command Med. Lab., Fort  
 Omaha. 1944.
- Serotype simsbury 1, 3, 19:z<sub>27</sub>:-  
 12004 CDC. 1955.
- Serotype stanley 4, 5, 12:d:l, 2  
 7308 W.A. Randall, Georgetown Univ. 1938.
- Serotype tallahassee 6, 8:z<sub>4</sub>, z<sub>32</sub>:-  
 12002 CDC. 1955.
- Serotype telaviv 28:y:e, n, z<sub>15</sub>  
 9190 O. Felsenfeld, Illinois Dept. of Pub. Welfare. 1943. Texas  
 Salmonella Center.
- Serotype tennessee 6, 7:z<sub>29</sub>:-  
 10722 AMC, strain ETS 155. 1949.
- Serotype texas 4, 5, 12:k:e, n, z<sub>15</sub>  
 11999 CDC. 1955.

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### Salmonella spp. (Continued)

Serotype thompson 6, 7:k:l, 5

8391 P.R. Edwards, strain 2988, phase 2. 1942. ISC.

10256 AMC, strain ETS 152 (94388), phase 1. 1947.

10257 AMC, strain ETS 40, phase 2. 1947.

Serotype typhisuis 6, 7:c:l, 5

8321 P.R. Edwards, Univ. of Kentucky. 1941. NCTC strain 348.

Serotype uganda 3, 10:l, z<sub>13</sub>:1, 5

10725 AMC, strain ETS 101. 1949.

Serotype urbana 30:b:e, n, x

9261 O. Felsenfeld, strain 2039, Chicago Med. School. 1943.

Serotype virchow 6, 7:r:l, 2

8390 P.R. Edwards, strain 4519, Univ. of Kentucky. 1942. ISC.

Serotype virginia (8):d:—

9670 F. Spindle, Dept. of Health, Richmond, Va. 1945.

Serotype waycross 41:z<sub>4</sub>, z<sub>23</sub>:—

12009 CDC. 1955.

Serotype weslaco 42:z<sub>36</sub>:—

12010 CDC. 1955.

Serotype wichita 1, 13, 23:d:z<sub>37</sub>

7563 F. Schiff, Beth Israel Hosp., New York, N.Y. 1939.

Serotype worthington 1, 13, 23:l, w:z

9607 O. Felsenfeld, Chicago Med. School. 1944.

### Sarcina aurantiaca Flügge

146 AMC. 1925.

### Sarcina erythromyxa (Overbeck) Král

187 R.S. Breed, New York Agric. Expt. Sta. 1943. Král Collection.

### Sarcina flava de Bary

147 AMC. 1925

540 K.F. Meyer, Univ. of California, Berkeley. 1925.

### Sarcina lutea Schroeter

272 E.O. Jordan, Univ. of Chicago. 1925. Arch. Biochem. and Biophys., 1952, 40, 364.

381 and 382 G.J. Hucker, strains S66 and S82, New York Agric. Expt. Sta. 1925. Susceptible to lysozyme action.

383 G.J. Hucker, strain S85, New York Agric. Expt. Sta. 1925. S. Orla-Jensen. From milk.

533 K.F. Meyer, Univ. of California, Berkeley. 1925.

9341 W.A. Randall, strain PCI 1001, FDA. 1947. J.C. Burke. Assay of aureomycin, chloromycetin and penicillin.

9341a W.A. Randall, strain PCI 1001/D, FDA. 1954. Resistant to dihydrostreptomycin and streptomycin.

9622 R.J. Williams, Univ. of Texas. 1944.

10054 W.A. Randall, strain PCI 1000, FDA. 1946. S.A. Waksman.

10773 B.F. Shema, strain IPC 861, Inst. of Paper Chemistry, Appleton, Wis. 1950. Assay of slime control agents in pulp and paper mill system.

### Sarcina subflava Ravenel

7468 W.C. Tobie, strain Mercedita, Mercedita, Puerto Rico. 1939. FDA strain PCI 1009. Assay of bacitracin.



## BACTERIA

### Sarcina ureae (Beijerinck) Löhnis

- 6473 N.R. Smith, strain 42, USDA. 1938. M.W. Beijerinck.  
Arch. f. Mikrobiol., 1935, 6, 73.

### Serratia marcescens Bizio

- 264 E.O. Jordan, strain 1404, Univ. of Chicago. 1925. From  
NCTC, through R.S. Breed.  
274 R.S. Breed, New York State Agric. Expt. Sta. 1941. NCTC  
strain 1377.  
4002 R.S. Breed, strain K5, New York State Agric. Expt. Sta.,  
1927. Received as *Serratia indica*. Král Collection;  
originally from Robert Koch.  
4003 R.S. Breed, strain CU37. 1941. Received as *Serratia indica*.  
J. Bact., 1926, 2, 76.  
4180 Hygienisches Institut, strain 233925, Köln-Lindenthal,  
Germany. 1927. Nonmotile. From milk.  
8100 N.R. Smith, strain 116-175, USDA. 1941.  
8195 R.S. Breed, strain HY, New York State Agric. Expt. Sta.  
1941.  
9103 J.D. Aronson, Fort Belvoir, Virginia. 1943. From spinal  
fluid.

### Serratia marcescens var. kilensis

- 60 AMC. 1925.  
275 R.S. Breed, New York Agric. Expt. Sta. 1925. Pasteur  
Inst., strain 3; L. Fortineau.  
990 R.S. Breed, strain BF. 1927.  
7316 W.C. Tobie, Mercedita, Puerto Rico. 1938. Type Rb.  
A. Lasseur.  
8101 N.R. Smith, strain 175-205, USDA. 1941.  
9986 W.A. Randall, FDA. 1946. S.A. Waksman. Assay of  
streptomycin.  
11111 R.S. Breed, New York Agric. Expt. Sta. 1951. Received as  
*Serratia urinae*.

Shigella alkalescens: See *Escherichia* spp. ("Alkalescens-Dispar Group")

### Shigella boydii Ewing

#### Serotype 1

- 8699 AMC. 1942. Boyd Type 170. Bact. Revs., 1942, 6, 16.  
9207 AMC, strain 43-G-58. 1943. Boyd strain M44. Trans. Roy.  
Soc. Trop. Med. Hyg., 1943, 33.

#### Serotype 2

- 8700 NCTC. 1943. Boyd Type P288. Bact. Revs., 1942, 6, 16.  
9208 AMC, strain 43-G-59. 1943. Boyd strain M272. Trans. Roy.  
Soc. Trop. Med. Hyg., 1943, 33.

#### Serotype 3

- 8702 NCTC. 1943. Boyd Type D1. Bact. Revs., 1942, 6, 16.  
9209 AMC, strain 43-G-60. 1943. Boyd strain M277. Trans.  
Roy. Soc. Trop. Med. Hyg., 1943, 33.

#### Serotype 4

- 8701 AMC. 1942. Boyd Type P274. Bact. Revs., 1942, 6, 16.  
9210 AMC, strain 43-G-63. 1943. Boyd strain M274. Trans. Roy.  
Soc. Trop. Med. Hyg., 1943, 33.

## BACTERIA

### Shigella boydii (Continued)

#### Serotype 5

- 8704 NCTC. 1944. Boyd Type P143. Bact. Revs., 1942, 6, 16.  
9212 AMC, strain 43-G-64. 1943. Boyd strain M280. Trans. Roy. Soc. Trop. Med. Hyg., 1943, 33.

#### Serotype 6

- 12027 CDC, strain 1713-51. 1951  
12477 CDC, strain 9771. 1956. Boyd Type D19, Weil strain XII.

#### Serotype 7

- 9905 (*Shigella paradysenteriae*, Type Lavington.) AMC, strain 4006. 1945.

#### Serotype 8

- 12028 CDC, strain 1643. 1955. Cox and Wallace's Serotype 112.

#### Serotype 9

- 12029 CDC, strain 732. 1955.

#### Serotype 10

- 12030 CDC, strain 6336-52. 1955.

#### Serotype 11

- 12031 CDC, strain 1624-54. 1955.

### Shigella dysenteriae (Shiga) Castellani and Chalmers

- 11835 AMC, strain 43-A-1. 1954. Challenge organism in mouse protection tests.

#### Serotype 1

- 9361 AMC, strain 43-A-14. 1943.  
9583 O. Felsenfeld, strain EC154, Chicago Medical School. 1944.  
9665 AMC, strain 2519-1944. 1945.

#### Serotype 2

- 9750 AMC, strain 43-C-6. 1945 TenBroeck strain India.

#### Serotype 3

- 9751 AMC, strain 43-G-93. 1945. Sachs Type Q771.

#### Serotype 4

- 9753 AMC, strain 43-G-86. 1945. Sachs Type Q1167; K. M. Wheeler strain 1970.

#### Serotype 5

- 9764 AMC, strain 43-G-84. 1945. Sachs Type Q1030; K. M. Wheeler strain 1912.

#### Serotype 6

- 9754 AMC, strain 43-G-81. 1945. Sachs Type Q454; K. M. Wheeler strain 1908.

#### Serotype 7

- 9752 AMC, strain 43-G-76. 1945. Sachs Type Q902.

#### Serotype 8

- 12021 CDC, strain 2116-52. 1955.

### Shigella flexneri Castellani and Chalmers

#### Serotype 1a

- 9199 AMC, strain 43-G-68. 1943. Boyd strain M134. Trans. Roy. Soc. Trop. Med. Hyg., 1943, 33.

9214 and 9216 O. Felsenfeld, Illinois Dept. of Public Welfare. 1943.

#### Serotype 1b

- 9380 AMC, strain 43-G-71. 1944.

## BACTERIA

### Shigella flexneri (Continued)

#### Serotype 2a

- 9473 AMC, strain 328 Y. 1944. J. Immunol., 1944, 48, 87.
- 9582 O. Felsenfeld, strain EC153, Chicago Medical School. 1944.
- 9747 AMC, strain 43-G-94. 1945.

#### Serotype 2b

- 12022 CDC, strain 3591-52. 1955.

#### Serotype 3

- 203 E.O. Jordan, Univ. of Chicago. 1925.
- 9403 AMC, strain 43-G-73. 1944.
- 11836 AMC, strain 43-G-100. 1954. Challenge organism in mouse protection tests.

#### Serotype 4

- 9748 AMC, strain 4-2. 1945. Univ. of Cambridge, England.  
Proc. Roy. Soc. Trop. Med. Hyg., 1943, 33.

#### Serotype 4a

- 12023 CDC, strain 5380-52. 1955.

#### Serotype 4b

- 12024 CDC, strain 1679. 1955.

#### Serotype 5

- 9204 AMC, strain 43-G-61. 1943. Boyd strain M311. Trans. Roy. Soc. Trop. Med. Hyg., 1943, 33.

#### Serotype 6

- 12025 CDC, strain 64, 1955.

#### Serotype X

- 12026 CDC, strain 1677, 1955.

#### Serotype Y

- 9906 AMC, strain 4665-1945. 1945.

### Shigella sonnei (Levine) Weldin

- 9290 AMC, strain 43-GG9. 1944.
- 11060 F. Stimpert, strain 04628, Parke, Davis and Co., Detroit, Mich. 1951. PCI strain 959. J. Bact., 1950, 59, 714.
- 11803 A. Castellani, Institute de Med. Trop., Lisbon. 1954.  
Giornale di Batteriologia e Immunologia, 1954, 46, 147.

### Shigella spp.

#### Provisional serotype 58

- 12037 CDC, strain A-58:1646. 1955. Cox and Wallace Type 58.

#### Provisional serotype 123

- 12033 CDC, strain C-123. 1955.

#### Provisional serotype 425

- 12032 CDC, strain C-425. 1955.

#### Provisional serotype 703

- 12034 CDC, strain C-703. 1955.

#### Provisional serotype 792

- 12036 CDC, strain Ca-792. 1955.

#### Provisional serotype 2000-53

- 12040 CDC, strain A-2000-53. 1955.

#### Provisional serotype 2770-51

- 12035 CDC, strain C-2770-51. 1955.

#### Provisional serotype 3873-50

- 12038 CDC, strain A-3873-50. 1955.

## BACTERIA

- Sphaerophorus freundii (Hauduroy et al.) Prévot  
9817 E. Klieneberger-Nobel, Lister Inst., London. 1955.  
Received as *Bacteroides* sp. L.L. Dienes strain 132.
- Sphaerophorus necrophorus (Flügge) Prévot  
11300 A. Muggia, strain 4 (bovine), Lab. Indust. Farmaceut.  
Ecuadorianos, Quito, Ecuador. 1952.  
12290 (*Bacteroides funduliformis*) L.S. Suter, strain K3, VA Hosp.,  
Memphis. 1955.
- Sphaerophorus varius (Eggerth and Gagnon) Prévot  
8501 (*Bacteroides varius*) A.H. Eggerth, Long Island Coll. of  
Med. 1954.
- Sphaerotilus natans Kützing  
11021 E.G. Pringsheim, Univ. of Cambridge. 1951.
- Spirillum atlanticum Williams  
12753\* Marion A. Williams, Univ. of S. California. 1957. From  
sea water.
- Spirillum anulus Williams  
11879 Marion A. Williams, S. Illinois Univ. 1954.
- Spirillum beijerinckii Williams  
12754\* Marion A. Williams, Univ. of S. California. 1957. From  
sea water.
- Spirillum curvatum Williams  
11338 S.C. Rittenberg, Univ. of S. California. 1954.
- Spirillum giesbergeri Williams  
11334 S.C. Rittenberg, Univ. of S. California. 1954.
- Spirillum graniferum Williams  
9785 O.B. Williams, Univ. of Texas. 1945.
- Spirillum itersonii Giesberger  
12639 Marion A. Williams, strain Giesberger, S. Illinois Univ.  
1956.
- Spirillum itersonii var. vulgatum Williams  
11331 S.C. Rittenberg, Univ. of S. California 1954.
- Spirillum linum Williams  
11336 S.C. Rittenberg, Univ. of S. California. 1954.
- Spirillum lunatum Williams  
11337 S.C. Rittenberg, Univ. of S. California. 1954.
- Spirillum polymorphum Williams  
11332 S.C. Rittenberg, Univ. of S. California. 1954.
- Spirillum serpens (Müller) Winter  
11330 A.J. Kluyver, CBS. 1952.  
12638 Marion A. Williams, strain Giesberger, S. Illinois Univ.  
1956.
- Spirillum serpens var. azotum Williams  
11335 S.C. Rittenberg, Univ. of S. California. 1954.
- Spirillum sinuosum Williams  
9786 O.B. Williams, Univ. of Texas. 1945.
- Sporocytophaga myxococcoides (Krzemieniewska) Stanier (*Cytophaga*  
*myxococcoides*)  
10010 and 10011 N.R. Smith, strains 142 and 143, USDA. 1947.
- Staphylococcus aureus Rosenbach  
151 AMC. 1925. Albus form.



# BACTERIA

## Staphylococcus aureus (Continued)

- 152 Hyg. Lab., strain 178. 1925.
- 395 G.J. Hucker, strain 39, New York Agric. Expt. Sta. 1925. Král Collection. Citreus form.
- 4012 R. Müller, Hygienisches Inst., Köln. 1927. Citreus form.
- 4691 G.F. Reddish, Lambert Pharmacal Co., St. Louis. 1930.
- 4776 J.C. Lander, Sherwin-Williams Co., Chicago. 1931. Hyg. Lab.
- 4840 and 4841 R.D. Herrold, John McCormick Inst. 1932. Albus form.
- 6020 C.S. Gibbs, strain Wegetepa, Massachusetts State Coll. 1936. Albus form.
- 6339, 6340 and 6341 W.A. Randall, strains 11, 13 and 14 (human), Georgetown Univ. 1938.
- 6342 and 6343 W.A. Randall, strains 2 and 8 (human), Georgetown Univ. 1938.
- 6516 and 6517 H.W. Schoening, strains 8-A and 13-B (ovine), USDA. 1938.
- 6520 H.W. Schoening, strain 105-A (porcine). USDA. 1938. Albus form.
- 6538 W.A. Randall, strain 209, FDA. 1944. Used in germicide testing.
- 6538DR W.A. Randall, strain PCI 1209/D, FDA. 1954. Resistant to dihydrostreptomycin and streptomycin.
- 6538P W.A. Randall, strain 209P, FDA. 1944. Assay of penicillin. NRRL strain B-313; PCI 1209.
- 6600 AMC, strain 29 (equine). 1938.
- 6601 AMC, strain 23 (equine). 1938. Albus form.
- 8094, 8095 and 8096 G.O. Favorite, strains C.E., C.P. and M.B., Hahnemann Med. Coll., Philadelphia. 1941. J. Bact., 1941, 41, 305.
- 8428, 8429 and 8430 P.A. Little, strains 243 (avian), 245 (ovine), and 263 (equine), Lederle Labs., Inc., Pearl River, N.Y. 1942. Albus forms.
- 8431, 8432 and 8433 P.A. Little, strains 27 (equine), 233 (avian) and 65 (ovine). 1942.
- 9144 J.L. Stokes, strain 3R7089, Merck and Co., Inc., Rahway, N.J. 1943. N.G. Heatley, strain Oxford H; NRRL strain B-314. Assay of penicillin.
- 9314 and 9315 Jensen-Salsbery Labs., Inc., Kansas City, Mo., strains 12-121 (bovine) and 12-123 (rabbit). 1944.
- 9491 A.P. Stewart, Golden State Co., Ltd., San Francisco. 1944. M. Marshall. Albus form. Conversion of dehydroascorbic acid to ascorbic acid.
- 9664 R.W.H. Gillespie, AMC. 1944. From outbreak of food poisoning.
- 9801 E.E. Osgood, strain Oregon-J, Univ. of Oregon. 1945. Assay of penicillin.
- 9996 W.A. Randall, strain SM, FDA. 1946. Cup assay of streptomycin. Proc. Soc. Exptl. Biol. and Med., 1946, 59, 255.

## BACTERIA

### Staphylococcus aureus (Continued)

- 10055 T.C. Grubb, strain 209-B, Vick's Chemical Co., Flushing, N.Y. 1946. J. Bact., 1946, 51, 205.
- 10390 P.R. Carlquist, AMC. 1948. Coagulase positive.
- 10537 W.A. Randall, strain PCI 1203, FDA. 1948. Assay of bacitracin.
- 10617 NCTC, strain 7856. 1949.
- 10831 E.P. Casman, strain 37, FDA. 1950. Sharp and Dohme.
- 10832 E.P. Casman, strain Wood 46, FDA. 1950. Connaught Labs.
- 11371 W.A. Randall, strain PCI 1251, FDA. 1952.
- 11522 W.L. Williams, Lederle Labs., Pearl River, N.Y. 1953. Variant of FDA strain 209P. Assay of penicillin in feeds.
- 11631 W.A. Randall, strain S4, FDA. 1953. Albus form. Resistant to penicillin.
- 11632 W.A. Randall, strain S13, FDA. 1953. Resistant to penicillin.
- 12207 P. Lucas, strain N-55, Cornell Univ. 1955. Catalase negative.
- 12228 W.A. Randall, strain PCI 1200, FDA. 1955. Albus form. Assay of neomycin. Antibiot. and Chemother., 1957, 7, 640.
- 12598 to 12601 NCTC, strains 8530, 8531, 8532 and 6131. 1956. Serotypes 1 to 4.
- 12602 to 12605 NCTC, strains 6133, 6134, 6135 and 6136. 1956. Serotypes 5 to 8.
- 12606 to 12610 NCTC, strains 6137, 8722, 8723, 8725 and 8726. 1956. Serotypes 9 to 13.
- 12692 FDA, strain PCI 1209/N. 1956. Resistant to novobiocin.
- 12715 Frances Bowman, strain PCI 1209/T, FDA. 1957. Resistant to tetracycline. Antibiot. and Chemother., 1957, 7, 640.

### Staphylococcus epidermidis (Winslow and Winslow) Evans

- 155 (Micrococcus epidermidis) AMC, strain 263. 1925. Parke, Davis and Co., strain 0258.

### Streptobacillus moniliformis Levaditi et al.

- 12422 Julia M. Coffey, strain 40199, New York State Dept. of Health. 1956. Ann. Rept. Div. Labs. and Res., N.Y. State Dept. of Health, 1953, p. 170.

### Streptococcus agalactiae Lehmann and Neumann (Lancefield's Group B)

- 4768 T. Smith, strain 55, Rockefeller Inst. Med. Res. 1931. J. Exptl. Med., 1918, 28, 149.
- 6638 Alice C. Evans, strain 916, NIH. 1938. Rebecca C. Lancefield.
- 7077 New York State Dept. of Health, strain 314. 1938.
- 9925 L.A. Burkey, USDA. 1945.

### Streptococcus alactosus Smith and Brown (Lancefield's Group A)

- 8058 J.H. Brown, strain S.H., Johns Hopkins Univ. 1941. From case of peritonitis. J. Med. Res., 1915, 31, 455.

### Streptococcus asalignus Frost, Gumm, and Thomas (Lancefield's Group B)

- 8059 J.H. Brown, strain NC 18, Johns Hopkins Univ. 1941. J. Med. Res., 1915, 31, 455.

### Streptococcus bovis Orla-Jensen emend. Sherman

- 9809 J.M. Sherman, strain 38, Cornell Univ. 1945.

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## Streptococcus cremoris Orla-Jensen (Group N)

9596 C.P. Hegarty, Georgetown Univ. 1944. Cornell Univ.

9625 J.M. Sherman, strain C13F, Cornell Univ. 1944.

## Streptococcus damnosus var. minimus Bhandari and Walker

11309 NCIB, strain 8520, 1954.

## Streptococcus diacetilactis Matuszewski et al.

11007 George Josh, Armour and Co., Chicago. 1951. Flavors butter. Polish Agr. Forest Ann., 1936, 36, 1.

## Streptococcus durans Sherman and Wing (Lancefield's Group D)

6056 J.M. Sherman, strain 23C2, Cornell Univ. 1937. From human feces.

11576 R.P. Tittsler, strain SD-A, USDA. 1953. From Cheddar cheese.

## Streptococcus dysgalactiae Diernhofer (Lancefield's Group C)

9926 L.A. Burkey, USDA. 1945.

## Streptococcus equi Sand and Jensen (Lancefield's Group C)

6580 AMC, strain 16, 1938.

9527 T.C. Jones, strain 2-1-22, Veterinary Research Lab., Front Royal, Va. 1944.

9528 T.C. Jones, strain 2-1-23. 1944.

## Streptococcus equinus Andrewes and Horder

9812 J.M. Sherman, strain H12B, Cornell Univ. 1945.

## Streptococcus equisimilis Frost and Engelbrecht (Lancefield's Group C)

9542 Alice C. Evans, strain 1180, NIH. 1944.

## Streptococcus faecalis Andrewes and Horder (Lancefield's Group D)

349 E.C. Rosenow, strain 2254, Mayo Clinic. 1925. From case of poliomyelitis.

828 L. Loewe, strain Bluestein, Mt. Sinai Hospital, New York, N.Y. 1926. From subacute bacterial endocarditis.

882 B.A. Linden, strain A, USDA. 1926. From food poisoning. U.S. Pub. Health Repts., 1926, 41, 1647.

4079 Faith P. Hadley, strain 646, Univ. of Mich. 1927. W. L. Holman, Univ. of Toronto.

4082 Faith P. Hadley, strain 77. 1927. From root canal of pulpless tooth.

4083 Faith P. Hadley, strain 169, 1927.

4200 K.E. Birkhaug, strain R.F.1, Univ. of Rochester. 1927. From rheumatic fever. J. Infect. Dis., 1927, 40, 549; Proc. Soc. Exptl. Biol. and Med., 1927, 24, 541.

6057 J.M. Sherman, strain 24, Cornell Univ. 1937. From cheese. J. Bact., 1945, 49, 347.

7080 New York State Dept. of Health, strain 110. 1938. From meat causing food poisoning.

8043 E. Snell, "Streptococcus lactis R," Univ. of Texas. 1941. Assay of folic acid, pyridoxal and pyridoxamine.

9790 J.L. Stokes, Merck and Co., Inc., 1945. Assay of amino acids. J. Biol. Chem., 1945, 160, 35.

10541 FDA, strain PCI 1341. 1948. Assay of tyrothricin.

10741 R.J. Reedy, strain PCI 1305, FDA. 1949.

11420 E. Snell, strain ST, Univ. of Texas. 1953. NCTC strain 6782. Production of citrulline from arginine.

## BACTERIA

### Streptococcus faecalis (Continued)

- 11700 Dept. of Bacteriology, Cornell Univ., strain 10C1. 1953.  
J. Biol. Chem., 1952, 194, 849.
- 12755 C.B. van Niel, strain H.3.1, YDC, Hopkins Marine Station.  
1957. Motile.

### Streptococcus faecalis var. liquefaciens (Sternberg emend. Orla-Jensen) Mattick

- 4532 and 4533 (Streptococcus liquefaciens) M. Frobisher, strains  
A1 and A2, Rockefeller Inst. 1929. J. Bact., 1928, 16, 301.

### Streptococcus faecalis var. zymogenes (MacCallum and Hastings) Mattick

- 6055 (Streptococcus zymogenes) J.M. Sherman, strain In 1,  
Cornell Univ. 1937. From pasteurized milk.
- 10100 See Streptococcus spp.

### Streptococcus genitalium Dimock and Edwards

- 6621 and 6622 AMC, strains 513 and Loyal Hannah. 1938.
- 6623 and 6624 AMC, strains 8F71 and 1F57. 1938.
- 10009 S.J. Schilling, strain 13-166, Jensen-Salsbery Labs., Inc.,  
Kansas City, Mo. 1946.

### Streptococcus lactis (Lister) Löhnis (Lancefield's Group N)

- 7962 C.P. Hegarty, strain 125, Georgetown Univ. 1941. J. M.  
Sherman's Laboratory, Cornell Univ. J. Bact., 1939, 37, 145.
- 7963 C.P. Hegarty, strain L21. Proc. Soc. Exptl. Biol. Med.,  
1938, 38, 218.
- 11454 R.P. Tittsler, strain Berridge X 13, USDA. 1953. Used in  
Swiss cheese manufacture. Production of nisin.

### Streptococcus liquefaciens Sternberg emend. Orla-Jensen: See Streptococcus faecalis var. liquefaciens

### Streptococcus mitis Andrewes and Horder

- 903 C.I. Woolsey, Frances Willard Hospital, Chicago. 1926.  
From ulcerated sore throat.
- 6249 W.A. Randall, Georgetown Univ. 1938. From case of  
septicemia and endocarditis.
- 9811 J.M. Sherman, strain M7A, Cornell Univ. 1945.

### Streptococcus mucilaginosus Kulka, Cosbie and Walker

- 11304 NCIB, strain 8247. 1952. T.K. Walker, College of Tech-  
nology, Manchester, England.

### Streptococcus opportunus Brown: See Streptococcus sp., Group B, Type 1b

### Streptococcus parvus Bhandari and Walker

- 11308 NCIB, strain 8519. 1952. T.K. Walker, Univ. of Manchester,  
England.

### Streptococcus pyogenes Rosenbach (Lancefield's Group A)

- 12344 (Type 1) Rebecca C. Lancefield, strain T1<sup>t</sup>, Rockefeller Inst.  
1957. Griffith strain S.F. 130.
- 12345 (Type 2) Rebecca C. Lancefield, strain T2<sup>t</sup>. 1957. Griffith  
strain B.I.T.
- 12961 (Type 2) Rebecca C. Lancefield, strain C649A<sup>t</sup>. 1957. Con-  
tains R antigen.
- 10389 (Type 3) AMC, Colebrook strain Richards. 1948. Rebecca C.  
Lancefield. Production of streptolysin O. J. Bact., 1950, 60,  
301.

<sup>t</sup> One of Rebecca C. Lancefield's typing strains.



# BACTERIA

## Streptococcus pyogenes (Continued)

- 12346 (Type 3) Rebecca C. Lancefield, strain D58 (Wilson)<sup>t</sup>. 1957. Colebrook strain Richards.
- 12384 (Type 3) Rebecca C. Lancefield, strain C203<sup>t</sup>. 1957. Dochez strain 1708.
- 10402 (Type 4) Rebecca C. Lancefield, strain T4<sup>t</sup>. 1957. Griffith strain Grove Hospital. Produces hyaluronidase. J. Infect. Dis., 1948, 83, 1.
- 12385 (Type 4) Rebecca C. Lancefield, strain J17A4<sup>g</sup>. 1957. Coburn strain RPHI.
- 12347 (Type 5) Rebecca C. Lancefield, strain T5B<sup>t</sup>. 1957. Griffith strain Franklin.
- 12348 (Type 6) Rebecca C. Lancefield, strain S43<sup>t</sup>. 1957. Dochez and Avery strain S43 (Texas).
- 12349 (Type 8) Rebecca C. Lancefield, strain C265<sup>t</sup>. 1957. Strain N.F. 14 or S.F.H. Schwentker.
- 12350 (Type 9) Rebecca C. Lancefield, strain T9<sup>t</sup>. 1957. Griffith strain Symons.
- 12352 (Type 11) Rebecca C. Lancefield, strain T11<sup>t</sup>. 1957. Griffith strain N.E. 73T.
- 11434 and 11435 (Type 12) R.W. Reed, strains H3 and 35, Halifax, Nova Scotia. 1953.
- 11436 (Type 12) R.W. Reed, strain 8. 1953.
- 12351 (Type 12) Rebecca C. Lancefield, strain E14<sup>t</sup>. 1957. Dochez strain N.Y. 5.
- 12353 (Type 12) Rebecca C. Lancefield, strain T12<sup>t</sup>. 1957. Griffith strain S.F. 42.
- 12354 (Type 13) Rebecca C. Lancefield, strain T13<sup>t</sup>. 1957. Griffith strain Glover.
- 12972 (Type 14) Rebecca C. Lancefield, strain T14<sup>t</sup>. 1957.
- 9898 (Type 15) Rebecca C. Lancefield, strain T15<sup>t</sup>. 1957. Griffith strain J.S. 5.
- 12356 (Type 17) Rebecca C. Lancefield, strain J17E<sup>t</sup>. 1957. Coburn strain R9.
- 12357 (Type 18) Rebecca C. Lancefield, strain J17C<sup>t</sup>. 1957. Coburn strain R20.
- 12358 (Type 19) Rebecca C. Lancefield, strain J17D<sup>t</sup>. 1957. Coburn strain R3.
- 10403 (Type 22) Rebecca C. Lancefield, strain T22<sup>t</sup>. 1957. Griffith original strain 63T. Produces hyaluronidase. J. Path. Bact., 1944, 56, 27.
- 8133 (Type 23) Rebecca C. Lancefield, strain T23<sup>t</sup>. 1957. Griffith strain Barts 102.
- 10781 (Type 24) Rebecca C. Lancefield, strain C115. 1957. Griffith strain G54.
- 10782 (Type 24) Rebecca C. Lancefield, strain C98<sup>t</sup>. 1957.
- 12359 (Type 25) Rebecca C. Lancefield, strain B346op<sup>t</sup>. 1957. New York State Dept. of Health strain 41459.

<sup>t</sup> One of Rebecca C. Lancefield's typing strains.

<sup>g</sup> One of Rebecca C. Lancefield's grouping strains.

## BACTERIA

### Streptococcus pyogenes (Continued)

- 12360 (Type 26) Rebecca C. Lancefield, strain J17F<sup>t</sup>. 1957.  
Coburn strain R17.
- 8135 (Type 27) Rebecca C. Lancefield, strain T27<sup>t</sup>. 1957.  
Griffith strain 780 Tate.
- 12962 (Type 28) Rebecca C. Lancefield, strain T28<sup>t</sup>. 1957.  
Contains Type 28 M antigen in addition to R antigen.
- 10096 (Type 29) Rebecca C. Lancefield, strain Coggins D23<sup>t</sup>. 1955.
- 12362 (Type 30) Rebecca C. Lancefield, strain D24<sup>t</sup>. Griffith  
strain Quinn. 1957.
- 12363 (Type 31) Rebecca C. Lancefield, strain J137<sup>t</sup>. 1957.
- 12364 (Type 32) Rebecca C. Lancefield, strain C121<sup>t</sup>. 1957.  
Rockefeller Inst. Hospital strain 19RS63.
- 12365 (Type 33) Rebecca C. Lancefield, strain C107<sup>t</sup>. 1956.  
Rockefeller Inst. Hospital strain 14RS60.
- 12366 (Type 34) Rebecca C. Lancefield, strain C142<sup>t</sup>. 1957.  
Kuttner strain B22.
- 12367 (Type 35) Rebecca C. Lancefield, strain C171<sup>t</sup>. 1957.  
Kuttner strain 24 Berg.
- 12368 (Type 36) Rebecca C. Lancefield, strain C119<sup>t</sup>. 1957.  
Kuttner strain B35.
- 12369 (Type 37) Rebecca C. Lancefield, strain C242<sup>t</sup>. 1957.  
Kuttner strain 859 DeLellis.
- 12370 (Type 38) Rebecca C. Lancefield, strain C94<sup>t</sup>. 1957.  
Rockefeller Inst. Hospital strain 13RS1.
- 12371 (Type 39) Rebecca C. Lancefield, strain C95<sup>t</sup>. 1957.  
Rockefeller Inst. Hospital strain 19RS14.
- 12372 (Type 40) Rebecca C. Lancefield, strain C143<sup>t</sup>. 1957.  
Rockefeller Inst. Hospital strain C143.
- 12373 (Type 41) Rebecca C. Lancefield, strain C101<sup>t</sup>. 1957.  
Rockefeller Inst. Hospital strain 4RS8.
- 12374 (Type 42) Rebecca C. Lancefield, strain C113<sup>t</sup>. 1957.  
Rockefeller Inst. Hospital strain IRS79.
- 12375 (Type 43) Rebecca C. Lancefield, strain C126<sup>t</sup>. 1957.  
Rockefeller Inst. Hospital strain 2RS63.
- 12377 (Type 46) Rebecca F. Lancefield, strain C105<sup>t</sup>. 1957.  
Rockefeller Inst. Hospital strain 20RS14.
- 12378 (Type 47) Rebecca C. Lancefield, strain C744<sup>t</sup>. 1957.  
Griffith strain S.F. 13.
- 12963 (Type 48) Rebecca C. Lancefield, strain B403<sup>t</sup>. 1957. No R  
antigen; suitable for preparing Type 48 antiserum.
- 12964 (Type 48) Rebecca C. Lancefield, strain C510<sup>t</sup>. 1957.  
Contains R antigen.
- 12379 (Type London) Rebecca C. Lancefield, strain London. 1957.  
Todd strain London.
- 12380 (Type H105) Rebecca C. Lancefield, strain H105op<sup>t</sup>. 1956.  
Tillett strain CO. Fibrinolysin production.
- 12381 (Type B447) Rebecca C. Lancefield, strain B447<sup>t</sup>. 1957.  
Williams strain Corby B6522.

<sup>t</sup> One of Rebecca C. Lancefield's typing strains.

## BACTERIA

### Streptococcus pyogenes (Continued)

12382 (Type B514) Rebecca C. Lancefield, strain B514<sup>t</sup>. 1957.  
Nelson strain 7353.

12383 (Type D58X) Rebecca C. Lancefield, strain D58X<sup>t</sup>. 1957.  
Production of streptolysin O. Variant of strain D58.

### Streptococcus pyogenes Rosenbach (Type not specified)

624 W.D. Frost, strain Davis 40, Univ. of Wisconsin. 1925.

4614 E.S. Robinson, strain 4D, Boston Public Health Dept. 1929.  
J. Prevent. Med., 1929, 3, 225.

7958 Alice C. Evans, strain 563, NIH. 1941. Birkhaug strain E-1.

8668, 8669, 8670 and 8671 M.G. Sevag, strains C203M, C203G,  
C203R and 1685M, Univ. of Pennsylvania. 1942. J. Bact.,  
1942, 43, 421.

9342 W.A. Randall, strain PCI 1311, FDA. 1947. Potency testing  
of bacitracin.

### Streptococcus salivarius Andrewes and Horder

9222 I.C. Gunsalus, strain S20B, Cornell Univ. 1943. J. Biol.  
Chem., 1943, 150, 75.

9756, 9758 and 9759 C.F. Niven, Jr., strains S30D, S21B and B<sub>2</sub>,  
Cornell Univ. 1945. (S30D and B<sub>2</sub> are serological types II  
and I respectively.) J. Bact., 1943, 45, 249.

### Streptococcus sanguis White

10556, 10557 and 10558 J.M. Sherman, types I, II, I-II, Cornell  
Univ. 1949. From subacute bacterial endocarditis. J. Bact.,  
1946, 51, 721.

### Streptococcus thermophilus Orla-Jensen

7952 L.A. Rogers, strain S, USDA. 1941.

### Streptococcus uberis Diernhofer

9927 L.A. Burkey, USDA. 1945.

### Streptococcus zymogenes Holland: See Streptococcus faecalis var. zymogenes

### Streptococcus spp.

#### Lancefield's Group B

12400 (Type Ia) Rebecca C. Lancefield, strain O90<sup>t</sup>. Rockefeller  
Institute. 1957

12401 (Type Ib) (Streptococcus opportunus) Rebecca C. Lancefield,  
strain H36B<sup>t</sup>. J.H. Brown strain Baby B. 1957. J. Bact.,  
1939, 37, 133.

12973 (Type II) Rebecca C. Lancefield, strain V8<sup>t</sup>. 1957.

12403 (Type III) Rebecca C. Lancefield, strain D136C(3)<sup>t</sup>. Strain 3  
Cole 106. 1957.

12386 Rebecca C. Lancefield, strain O90R<sup>g</sup>. Todd strain Aronson  
Wamoscher. 1957.

12387 Rebecca C. Lancefield, strain V9<sup>g</sup>. 1957. O.T. Avery.  
Smith's milk strain.

#### Lancefield's Group C

9892 (Type 7) Rebecca C. Lancefield, strain Azgazardah. 1945.

<sup>t</sup> One of Rebecca C. Lancefield's type strains.

<sup>g</sup> One of Rebecca C. Lancefield's grouping strains.

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## Streptococcus spp. (Continued)

### Lancefield's Group C

- 12747 (Type 7) Emily Emmart, strain C7 (Rogers), NIH. 1957.  
H.J. Rogers, Natl. Inst. Med. Res., London.
- 6560 (Type 20) G.J.M. Bullowa, strain Niel, Harlem Hospital,  
New York, N.Y. 1938.
- 8132 (Type 21) Rebecca C. Lancefield, strain F132, Griffith  
strain Radford. 1941.
- 12388 Rebecca C. Lancefield, strain C74<sup>g</sup>. 1957. "Human C."
- 12449 Rebecca C. Lancefield, strain H46A. 1956.
- 12960 Rebecca C. Lancefield, strain K64<sup>g</sup>. 1957. J. Exptl. Med.,  
1955, 57, 571.

### Lancefield's Group D

- 9854 Rebecca C. Lancefield, strain H69D5. 1945.
- 12389 Rebecca C. Lancefield, strain C3<sup>g</sup>. 1955. O.T. Avery.
- 12958 Rebecca C. Lancefield, strain D76<sup>g</sup>. Sherman strain 26C1.  
1957.
- 12959 Rebecca C. Lancefield, strain C1<sup>g</sup>. 1957. O.T. Avery.  
J. Exptl. Med., 1933, 57, 571.

### Lancefield's Group E

- 12390 and 12391 Rebecca C. Lancefield, strains K129<sup>g</sup> and K131<sup>g</sup>.  
1956. J.H. Brown, certified milk strains 10 and C3056.

### Lancefield's Group F

- 12392 (Type 2) Rebecca C. Lancefield, strain H60R<sup>g</sup>. 1957.
- 9328 (Type 4) Eleanor Bliss, Lancefield strain H59, Johns  
Hopkins Univ. 1947.
- 12393 Rebecca C. Lancefield, strain C628<sup>g</sup>. Neter strain 930. 1957.

### Lancefield's Group G

- 12395 (Type 1) Rebecca C. Lancefield, strain F68A<sup>g</sup>. Bliss strain  
Havill III. 1956.
- 9884 (Type 16) Alice C. Evans, strain 661, NIH. 1942.
- 12394 Rebecca C. Lancefield, strain D166B<sup>g</sup>. 1956. M. Sanders.  
Large colony form.

### Lancefield's Group H

- 8144 Rebecca C. Lancefield, strain K208<sup>g</sup>. 1957. O.T. Avery.  
Isolated from diseased tooth.
- 12396 Rebecca C. Lancefield, strain F90A<sup>g</sup>. Hare strain Perryer.  
1957.

### Lancefield's Group K

- 12399 Rebecca C. Lancefield, strain D34E. Hare strain Sisson.  
1955.

### Lancefield's Group L

- 9932 and 9933 Rebecca C. Lancefield, strains D167A<sup>g</sup> (Fry strain  
SHC16) and D167B<sup>g</sup> (Fry strain SHC80). 1955.

### Lancefield's Group M

- 9934 and 9935 Rebecca C. Lancefield, strains D168A "X"<sup>g</sup> (Fry  
strain SHC192) and D168B "X" (Fry strain SHC194). 1945.

### Lancefield's Group N

- 9936 Rebecca C. Lancefield, strain C559<sup>g</sup>. Shattock strain O.J.  
1957.

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<sup>g</sup> One of Rebecca C. Lancefield's grouping strains.



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### Streptococcus spp. (Continued)

#### Lancefield's Group O

- 11843 Rebecca C. Lancefield, strain B357<sup>g</sup>. Boissard and Wormald strain 378. 1957. J. Path. Bact., 1950, 42, 37.  
12398 Rebecca C. Lancefield, strain B361<sup>g</sup>. Boissard and Wormald strain 415. 1957.

#### Streptococcus spp.

- 4782 W.J. Stainsby, strain AB13, Bellevue Hospital, New York, N.Y. 1931.  
8042 E. Snell, strain P-60, Univ. of Texas, Austin. 1941. Received as *Leuconostoc mesenteroides*. See Use Section.  
9895 Rebecca C. Lancefield, strain 9. 1945. F.L. Horsfall's "*Streptococcus* MG."  
10035 NCTC, strain 7147. 1946. Mattick strain M345/0018. Biochem. J., 1945, 39, 13.  
10100 V.H. Cheldelin, strain P-60, Oregon State College. 1946. Received as *Leuconostoc* sp. R.J. Williams. J. Bact., 1951, 61, 489.  
10761 P. Hauduroy, Centre de Collection de Types Microbiens. 1950. Anaerobic.  
11037 and 11038 H. Friedlander, strains F.J.H. and J.S.T., NIH. 1951. Alpha hemolytic. J. Infect. Dis., 1951, 88, 298.  
12112 Rebecca C. Lancefield, strain B220 (Elliott strain 5797). 1955. J. Exptl. Med., 1950, 92, 201.  
12697 T.E. King, strain P-60(UCLA), Oregon State College. 1956. Received as *Leuconostoc mesenteroides*. M.S. Dunn.  
12747 Emily Emmart, Rogers strain C-7, NIH. 1957. Produces hyaluronidase.  
12817, 12818 and 12819 R. Hugh, strains 494-2, 545-3 and 494-3, Geo. Washington Univ., Washington, D.C. Motile. From buccal cavity.

#### Streptomyces abikoensis Umezawa et al.

- 12766\* Y. Okami, strain Z-1-6, Natl. Inst. Health, Tokyo. 1957.

#### Streptomyces achromogenes Okami and Umezawa

- 12767\* Y. Okami, strain Z-4-1, Natl. Inst. Health, Tokyo. 1957. Japanese Med. J., 1953, 6.

#### Streptomyces acidomyceticus Ogata

- 11611 K. Sato, strain 3125, IFO. 1953.

#### Streptomyces albolavus (Waksman and Curtis) Waksman and Henrici

- 12626 NRRL, strain B-1273. 1956. Waksman strain 3008.

#### Streptomyces alboniger Hesseltine et al.

- 12461\* Lederle Labs., Pearl River, N.Y., strain P-638. Mycologia, 1954, 46, 16. Distribution restricted.

#### Streptomyces albus (Rossi-Doria emend. Krainsky) Waksman and Henrici

- 618 A.J. Kluyver, Techn. Univ., Delft. 1926. A. Krainsky.  
3005 S.A. Waksman, Rutgers Univ. 1944. CBS.

#### Streptomyces annulatus (Beijerinck emend. Krassilnikov) Waksman

- 3307 S.A. Waksman, Rutgers Univ. 1941.

<sup>g</sup>One of Rebecca C. Lancefield's grouping strains.

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- Streptomyces antibioticus* (Waksman and Woodruff) Waksman and Henrici  
866 S.A. Waksman, strain 1435, Rutgers Univ. 1942. Produces actinomycin.
- 10382 NRRL, strain B-546. 1948.
- 11891 E.M. Weber, strain 15784-1, Chas. Pfizer and Co., Inc., Brooklyn, N.Y. 1954. U.S. Patent 2,757,123.
- Streptomyces argenteolus*  
11009 D. Perlman, E.R. Squibb and Sons, strain MD-2428. New Brunswick, N.J. 1951. J. Bact., 1955, 69, 347. U.S. Patent 2,709,705.
- Streptomyces aureofaciens* Duggar  
10762 NRRL, strain 2209. 1950. Lederle Lab. strain A-377. Produces chlortetracycline (Aureomycin). U.S. Patent 2,482,055.
- 10762a to h N. Bohonos, Lederle Labs., Pearl River, N.Y. 1955. X-ray mutants of strain A-377. Ann. N.Y. Acad. Sci., 1954, 60, 71.
- 12416 Lederle Labs., strain Ha-20. 1955. Produces tetracycline. Distribution of this strain and its mutagenic derivatives is restricted.
- Streptomyces albus* (Waksman and Curtis) Waksman and Henrici  
3309 S.A. Waksman, strain 371, Rutgers Univ. 1944.
- Streptomyces bikiniensis* Johnstone and Waksman  
11062\* S.A. Waksman, strain 3514, Rutgers Univ. 1951. J. Bact., 1948, 55, 323.
- Streptomyces bobilliae* (Waksman and Curtis) Waksman and Henrici  
3310 S.A. Waksman, Rutgers Univ. 1944.
- Streptomyces cacaoi* (Waksman) Waksman and Henrici  
3082 S.A. Waksman. 1947.
- Streptomyces californicus* (Waksman and Curtis) Waksman and Henrici  
3312 S.A. Waksman. 1942.
- Streptomyces canus*  
12237 A.R. Menotti, strain 456786, Bristol Lab., Inc., Syracuse, N.Y. 1955.
- Streptomyces cellulosa* (Krausky) Waksman and Henrici  
3313 S.A. Waksman. 1941.
- Streptomyces chrysomallus* Lindenbein  
11523 S.A. Waksman, strain 3657, Rutgers Univ. 1953. Produces actinomycin C.
- Streptomyces cinnamomeus* Benedict et al. f. *cinnamomeus* Pridham et al.  
11874\* Ruth E. Gordon, strain 3664, Rutgers Univ. 1954. NRRL strain B-1285. Produces cinnamycin. Phytopath., 1956, 46, 576.
- Streptomyces cinnamomeus* f. *azacoluta* Pridham et al.  
12666\* NRRL, strain B-1699. 1956. Produces antibiotic(s) against certain plant-pathogenic fungi. Phytopath., 1956, 46, 576.
- Streptomyces cinnamomensis* Okami  
12308 K. Sato, strain 3414, IFO. 1955.
- Streptomyces citreus* (Krausky) Waksman and Henrici  
10974 S.A. Waksman, strain 3574, Rutgers Univ. 1951. CBS.
- Streptomyces coelicolor* (Muller) Waksman and Henrici  
3355 S.A. Waksman. 1940

## BACTERIA

### Streptomyces coelicolor (Continued)

10147 S.A. Waksman, strain 3034, Rutgers Univ. 1946.

### Streptomyces diastatochromogenes (Krainsky) Waksman and Henrici

12309 K. Sato, strain 3337, IFO. 1955.

### Streptomyces erythraeus (Waksman) Waksman and Henrici

11635 J.M. McGuire, strain M5-12559, Eli Lilly and Co., 1953.  
NRRL strain 2338. Produces erythromycin. U.S. Patent  
2,653,899.

11912 Ruth E. Gordon, strain 3036, Rutgers Univ. 1954.

### Streptomyces exiliatus (Waksman and Curtis) Waksman and Henrici

12627 NRRL, strain B-1237. 1956. Waksman strain 3316.

### Streptomyces flaveolus (Waksman) Waksman and Henrici

3319 S.A. Waksman. 1945. J. Bact., 1948, 56, 457.

### Streptomyces flavus (Krainsky) Waksman and Henrici

3369 S.A. Waksman. 1944.

### Streptomyces fradiae (Waksman and Curtis) Waksman and Henrici

10745 S.A. Waksman, strain 3535, Rutgers Univ. 1949. Produces  
fradycin and neomycin. Distribution restricted.

11903 K. Sato, strain 3123, IFO. 1954.

### Streptomyces gedanensis (Löhlein) Müller

4880 Sara A. Scudder, strain 24400, City Hospital, Welfare Island,  
New York, N.Y. 1933.

### Streptomyces gelaticus (Waksman) Waksman and Henrici

3323 S.A. Waksman, Rutgers Univ. 1950.

### Streptomyces gibsonii Waksman and Henrici: See *Nocardia gibsonii*

### Streptomyces gougerotii (Duché) Waksman and Henrici

10975 S.A. Waksman, strain 3590, Rutgers Univ. 1951. CBS.

### Streptomyces griseocarneus Benedict et al.

12628\* NRRL, strain B-1068. 1956. Produces hydroxystreptomycin.  
J. Bact., 1951, 62, 487.

### Streptomyces griseolus (Waksman) Waksman and Henrici

3325 S.A. Waksman, Rutgers Univ. 1947.

11796 E.M. Weber, strain 14576-4, Chas. Pfizer and Co., Inc.,  
Brooklyn, N.Y. Produces anisomycin.

### Streptomyces griseoluteus Umezawa et al.

12768 Y. Okami, strain P.37, Natl. Inst. Health, Tokyo. 1957.  
Produces griseolutin. J. Antibiot., Japan, 1952, 5, 477.

### Streptomyces griseoroseus

12125 J. Lein, Bristol Lab., Inc., Syracuse, N.Y. 1955. Produces  
etamycin.

### Streptomyces griseus (Krainsky) Waksman and Henrici

3478 S.A. Waksman, strain 25-G. 1949. Produces grisein.

10137 S.A. Waksman, strain 4, derived from strain 3463, the  
original streptomycin-producing strain. 1946. Proc. Soc.  
Exptl. Biol. and Med., 1944, 55, 66.

10971 A.B. Kupferberg, Ortho Res. Foundation, Raritan, N.J.  
1951. Waksman strain 3533. Produces streptocin.

11429 and 11746 S.A. Waksman, strains 9 (463) and 3570, Rutgers  
Univ. 1953.

### Streptomyces halstedii (Waksman and Curtis) Waksman and Henrici

10897 S.A. Waksman, strain 3328, Rutgers Univ. 1951.

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### Streptomyces hawaiiensis

- 12236 A.R. Menotti, strain 678506, Bristol Lab., Inc., Syracuse, N.Y. 1955.

### Streptomyces hygroscopicus (Jensen) Waksman and Henrici

- 10976 S.A. Waksman, strain 3951, Rutgers Univ. 1951. CBS.

### Streptomyces intermedius (Krieger emend. Wollenweber) Waksman

- 3329 S.A. Waksman, Rutgers Univ. 1921.

### Streptomyces iposporus (Pearson and Martin) Waksman and Henrici

- 11747 S.A. Waksman, strain 3476, Rutgers Univ. 1954.

### Streptomyces kentuckensis

- 12691\* F.S. Barr, S.E. Massengill Co., Bristol, Tenn. 1956.

### Streptomyces lavendulae (Waksman and Curtis) Waksman and Henrici

- 8664 S.A. Waksman, strain 3440, Rutgers Univ. 1944. Produces streptothricin.

- 11924 A.C. Finlay, strain 8197-20, Chas. Pfizer and Co., Inc., Brooklyn, N.Y. Produces cycloserine. 1954. U.S. Patent 2,773,878.

### Streptomyces nitrosporeus Okami

- 12769\* Y. Okami, strain O-20, Natl. Inst. Health, Tokyo. 1957. Produces nitrosporin. J. Antibiotics, Japan, 1952, 5, 477.

### Streptomyces noursei Brown et al.

- 11455 Julia M. Coffey, strain 48240, New York State Dept. of Health, Albany. 1953. Produces nystatin. Science, 1953, 117, 609.

- 11455a Julia M. Coffey, strain 5286, New York State Dept. of Health. 1955. Produces phalamycin. Antibiotics and Chemother., 1953, 3, 818.

### Streptomyces odorifer (Kullmann emend. Lachner-Sandoval) Waksman

- 6246 S.A. Waksman, Rutgers Univ. 1944.

### Streptomyces olivaceus (Waksman) Waksman and Henrici

- 3335 S.A. Waksman, 1944.

- 11626 NRRL, strain B-1125. 1953.

- 12019 E.M. Weber, strain 15920-19, Chas. Pfizer and Co., Inc., Brooklyn, N.Y. 1955. U.S. Patent 2,787,580.

### Streptomyces parvus (Krainsky) Waksman and Henrici

- 12433 S.A. Waksman, strain 3686, Rutgers Univ. 1956.

### Streptomyces parvulus

- 12434 S.A. Waksman, strain 3677, Rutgers Univ. 1956. Produces actinomycin.

### Streptomyces praecox (Millard and Burr) Waksman

- 3374 S.A. Waksman. 1947.

### Streptomyces pseudogriseolus

- 12770 Y. Okami, strain H-16c, Natl. Inst. Health, Tokyo. 1957.

### Streptomyces purpureochromogenes (Waksman and Curtis) Waksman and Henrici

- 3343 S.A. Waksman. 1941.

### Streptomyces rimosus Sobin et al.

- 10970 NRRL, strain B-2234. 1950. Ann. New York Acad. Sci., 1950, 53, 223. Produces oxytetracycline (Terramycin). U.S. Patent 2,516,080.



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### Streptomyces rochei Waksman

- 10739\* J.A. Aeschlimann, strain X-15, Hoffman-La Roche, Inc.,  
Nutley, N.J. Arch. Biochem., 1949, 22, 477.

### Streptomyces rubrircetuli Waksman and Henrici

- 12629 NRRL, strain B-1707. 1956. Waksman strain 3631.

### Streptomyces rutgersensis (Waksman and Curtis) Waksman and Henrici

- 3350 S.A. Waksman, Rutgers Univ. 1942.

### Streptomyces scabies (Thaxter) Waksman and Henrici

- 3352 S.A. Waksman. 1931.  
10246 C.F. Taylor, strain N54, Univ. of West Virginia. 1947.  
R.W. Goss, Univ. of Nebraska. Phytopath., 1947, 37, 49.

### Streptomyces thioluteus Okami et al.

- 12310 K. Sato, strain 3364, IFO. 1955.

### Streptomyces venezuelae Ehrlich et al.

- 10595 D. Gottlieb, strain 8-44, Univ. of Illinois. 1949.  
10712\* F. Stimpert, strain 04745, Parke, Davis and Co., Detroit,  
Mich. P.R. Burkholder strain A-65. Produces chloram-  
phenicol (Chloromycetin). J. Bact., 1948, 56, 467.

### Streptomyces verne (Waksman and Curtis) Waksman and Henrici

- 3353 S.A. Waksman, Rutgers Univ. 1947.

### Streptomyces vinaceus Mayer et al.

- 11861 NRRL, strain B-2285. 1954. Produces vinactin. U.S.  
Patent 2, 633, 445.

### Streptomyces virginiae Grundy et al.

- 12630\* NRRL, strain B-1447. 1956. Produces mycobacin.  
Antibiot. and Chemother., 1952, 2, 233.

### Streptomyces viridifaciens

- 11989 B. Heinemann, strain 567201, Bristol Lab., Syracuse,  
N.Y. 1954. U.S. Patent 2, 712, 517.

### Streptomyces viridis Millard and Burr

- 3372 S.A. Waksman, Rutgers Univ. 1947.

### Streptomyces viridochromogenes (Krainisky) Waksman and Henrici

- 3356 S.A. Waksman, Rutgers Univ. 1942.

### Streptomyces viridoflavus Waksman and Taber

- 12631 NRRL, strain B-1548. 1956. Waksman strain 3685.

### Streptomyces willmorei (Erikson) Waksman and Henrici

- 3332 S.A. Waksman. 1940. Received as *S. microflavus*.  
6867 NCTC, strain 1856. 1938.

### Streptomyces spp.

- 11071 and 11071a J.F. Pagano, strains 189-1 and M 1000, E. R.  
Squibb and Sons. 1951. Produce vitamin B<sub>12</sub>.  
11238 Philadelphia Quartermaster Depot, strain B-814. 1952.  
From tarpaulin, New Guinea. Actively cellulolytic; used for  
production of cell-free filtrates that hydrolyze cellulose and  
derivatives.  
11862 NRRL, strain 2288. 1954. Produces Antimycin A. U. S.  
Patent 2, 677, 170.

### Streptosporangium roseum Couch

- 12428\* J.N. Couch, strain 27b, Univ. of North Carolina. 1956.

## BACTERIA

### Thiobacillus novellus Starkey

8093 R.L. Starkey, New Jersey Agric. Expt. Sta. 1941.

### Thiobacillus thiooxidans Waksman and Joffe

8085 R.L. Starkey, 1941.

### Thiobacillus thioparus Beijerinck

8158 R.L. Starkey. 1954.

### Veillonella alcalescens Prévot

12641 and 12642 (Veillonella gazogenes) M.J. Pelczar, strains  
BYR2 and CLE1, Univ. of Maryland. 1956.

### Veillonella parvula (Veillon and Zuber) Prévot

10790 J.E. Faber, Prevot's strain TE3, Univ. of Maryland, 1950.  
J. Bact., 1950, 59, 349.

### Vibrio comma (Schroeter) Winslow et al.

23 Hyg. Lab. 1925. AMNH, strain 68.  
11623 AMC, strain 4Z. 1953. Australian J. Exptl. Biol. and Med.  
Sci., 1947, 25, 227; J. Immunol., 1953, 71, 110.

#### Type Hikoshima

11558 O. Felsenfeld, strain 3, Med. Corps, AUS. 1953.

#### Type Inaba

9459 P.R. Carlquist, strain 20-A-10, AMC. 1950. Calcutta  
School of Trop. Med. Production of vaccine.

11556 and 11628 O. Felsenfeld, strains 75 and 117. 1953.

Additional strains from O. Felsenfeld also available.

#### Type Ogawa

9458 P.R. Carlquist, strain 20-A-41, AMC. 1950. Pasteur Inst.  
Production of vaccine.

11557 and 11629 O. Felsenfeld, strains 277 and 107. 1953.

Additional strains from O. Felsenfeld also available.

### Vibrio spp., Cholera Group

#### Dieu

11555 O. Felsenfeld, Med. Corps, AUS. 1953.

#### El Tor

11553 O. Felsenfeld, strain 5. 1953.

#### Paracholera

11630, 12215, 12216 and 12217 O. Felsenfeld, strains W642, W554,  
F562 and W557. 1953 and 1954.

#### Yanagihara

11554 O. Felsenfeld. 1953.

### Vibrio cuneatus Gray and Thornton

6972 NCTC, strain 2583. 1938. P.H.H. Gray. From soil. Zblt.  
Bakt. II Abt., 1928, 73, 74.

### Vibrio fetus Smith and Taylor

11310 C.D. Kuzdas, strain 543, Univ. of Wisconsin. 1957. A.B.  
Crawford.

11411 C.D. Kuzdas, strain RL51, Univ. of Wisconsin. L. F.  
Williams.

### Vibrio jejuni Jones et al.

11734 J.F. Ryff, strain 22721, Wyoming Vet. Lab. 1955.

## BACTERIA

### Vibrio metschnikovii Gamaléia

7708 University of Maryland. 1940.

### Vibrio percolans Mudd and Warren

8461 NCTC, strain 1937. 1942. S. Mudd. J. Bact., 1923, 8, 447;  
J. Bact., 1953, 65, 263; Canadian J. Microbiol. 2, 102.

### Vibrio rubicundus Gottron et al.

8361 R.H. Weaver, Univ. of Kentucky. 1942. J. Bact., 1942, 43,  
61.

### Vibrio tyrogenus (Flügge) Holland

7085 New York State Dept. of Health. 1938. AMNH, strain 225A.

### Vibrio sp.

11171 ("Vibrio O1") NCIB, strain 8250. 1952. W.C. Evans. Break-  
down of aromatic ring compounds. Nature, Nov. 3, 1951.

### Waybridgia sp.

11027 E.G. Pringsheim, Univ. of Cambridge, England. 1951.  
From cow dung.

### Xanthomonas albilineans (Ashby) Dowson

12785 A. Hayward, Colonial Microbiological Research Inst.,  
Trinidad. 1957.

### Xanthomonas alfalfae (Riker et al.) Dowson

11765 D.D. Sutton, strain XA121, Univ. of California. 1954. M.K.  
Patel.

### Xanthomonas amaranthicola Patel

11645 M.P. Starr, strain XA, Univ. of California. 1953. M. K.  
Patel strain 16. Host: *Amaranthus viridis*. Curr. Sci.,  
1952, 21, 346.

### Xanthomonas badrii Patel et al.

11672 D.D. Sutton, strain XB103, Univ. of California. 1953. M.K.  
Patel strain 4. Host: *Xanthium strumarium*. Indian Phyto-  
path., 3, 103.

### Xanthomonas begoniae (Takimoto) Dowson

6718 and 11725 W.H. Burkholder, strains XB3 and XB9, Cornell  
Univ. 1954.

11726 W.H. Burkholder, strain XB10, Cornell Univ. 1954. E.  
Hellmers, Denmark.

### Xanthomonas beticola (Smith et al.) Săvulescu

10309 J.E. Kotila, USDA. 1948.

### Xanthomonas betlicola Patel et al.

11677 D.D. Sutton, strain XB104, Univ. of California. M.K. Patel  
strain 11. 1953. Host: *Piper betle*. Curr. Sci., 1951, 20, 106.

### Xanthomonas cajani Kulkarni et al.

11639 M.P. Starr, strain XC, Univ. of California. 1953. M. K.  
Patel strain 5. Host: *Cajanus cajan*. Curr. Sci., 1950, 19,  
384.

### Xanthomonas campestris (Pammel) Dowson

6402 J.G. Farrar, Virginia Polytech. Inst., Blacksburg. 1938.

7381 P.A. Ark, Univ. of California. 1938. From broccoli.

## BACTERIA

- Xanthomonas carotae (Kendrick) Dowson  
10547 W.H. Burkholder, strain XC11, Cornell Univ. 1949.
- Xanthomonas cassiae Kulkarni et al.  
11638 M.P. Starr, strain XC, Univ. of California. 1953. M. K.  
Patel strain 6. Host: *Cassia tora*. Curr. Sci., 1951, 20, 47.
- Xanthomonas celebensis (Gäumann) Dowson  
10710 and 10711 (*Pseudomonas celebensis*) CBS. 1949.
- Xanthomonas clerodendri Patel et al.  
11676 D.D. Sutton, strain XC121, Univ. of California. 1953. M.K.  
Patel strain 10. Host: *Clerodendron* spp. Curr. Sci., 1952,  
21, 74.
- Xanthomonas corylina (Miller et al.) Starr and Burkholder  
11227 and 11328 P.W. Miller, USDA. 1952.
- Xanthomonas desmodii Uppal and Patel  
11640 M.P. Starr, strain XD, Univ. of California. 1953. M. K.  
Patel strain 1. Host: *Desmodium diffusum*. Indian Phytopath.,  
1949, 2, 168.
- Xanthomonas desmodiigangeticii Uppal et al.  
11671 D.D. Sutton, strain XD106, Univ. of California. 1953. M.K.  
Patel strain 3.
- Xanthomonas erythrinae Patel  
11679 D.D. Sutton, strain XE101, Univ. of California. M.K. Patel  
strain 17. Host: *Erythrina indica*.
- Xanthomonas geranii (Burkholder) Dowson: See *Xanthomonas pelargonii*
- Xanthomonas hederæ (Arnaud) Dowson  
9653 W.H. Burkholder, strain XH6, Cornell Univ. 1944.
- Xanthomonas hyacinthi (Wakker) Dowson  
12612 W.H. Burkholder, strain XH8, Cornell Univ. 1956.
- Xanthomonas juglandis (Pierce) Dowson  
11329 P.W. Miller, USDA. 1952.
- Xanthomonas lawsoniae Patel  
11674 D.D. Sutton, strain XL103, Univ. of California. 1953. M.K.  
Patel strain 8. Host: *Lawsonia alba*.
- Xanthomonas maculifoliigardeniae (Ark) Elrod and Braun  
10201 (*Phytomonas maculifolium-gardeniae*) P.A. Ark, California  
strain, Univ. of Calif., Berkeley. 1946. Phytopath., 1946,  
36, 865.
- Xanthomonas malvacearum (Erw. Smith) Dowson  
9924 W.H. Burkholder, strain XM13, Cornell Univ. 1945. R.  
Weindling.  
12131 and 12132 L.S. Bird, isolates 52-3 (Race 1) and G4 (Race 2),  
Texas A and M Coll. 1955.
- Xanthomonas melhusii Patel  
11644 M.P. Starr, strain XM, Univ. of California. 1953. M. K.  
Patel strain 14. Host: *Tectona grandis*. Curr. Sci., 1952, 21,  
345.
- Xanthomonas papavericola (Bryan and McWhorter) Dowson  
10204 P.A. Ark, Univ. of California. 1946.
- Xanthomonas pelargonii (Brown) Starr and Burkholder  
8721 W.H. Burkholder, strain XP15, Cornell Univ. 1942.  
11057 and 11058 (*X. geranii*) M.P. Starr, strains XG4 and XG5. 1951.



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### Xanthomonas phaseoli (Erw. Smith) Dowson

- 9563 W.H. Burkholder, strain XP20, Cornell Univ. 1944.  
 10198 P.A. Ark, Univ. of California. 1946. From red kidney bean.  
 10199 P.A. Ark. 1946. From black bean. J. Bact., 1946, 51, 699.

### Xanthomonas phaseoli var. sojensis (Hedges) Starr and Burkholder

- 11766 D.D. Sutton, strain XP144, Univ. of California. 1954. M.K. Patel. From soybean.

### Xanthomonas poinsettiaecola Patel

- 11643 M.P. Starr, strain XP, Univ. of California. 1953. M.K. Patel strain 12. Host: Euphorbia pulcherrima. Indian Phytopath., 1951, 4, 144.

### Xanthomonas pruni (Erw. Smith) Dowson

- 10016 and 10017 W.H. Burkholder, strains XP11 and XP27, Cornell Univ. 1946.

### Xanthomonas ricinicola (Elliott) Dowson

- 11767 D.D. Sutton, strain XR101, Univ. of California. 1954. M.K. Patel. From Ricinus communis.

### Xanthomonas rubrilineans (Lee et al.) Starr and Burkholder

- 12529 and 12530 (*Pseudomonas rubrilineans*) W.J. Dowson, strains 359 and 360, Cambridge Univ., England. 1956.

### Xanthomonas sesbaniae Patel et al.

- 11675 D.D. Sutton, strain XS102, Univ. of California. 1953. M.K. Patel strain 9. Host: Sesbania aegyptiaca.

### Xanthomonas stewartii (Erw. Smith) Dowson

- 8199 and 8200 (*Bacterium stewartii*) W.H. Burkholder, strains 3152 (A14) and 3153 (D51), Cornell Univ. 1941. E.W. Lindstrom, Ames, Iowa.

### Xanthomonas tamarindi Patel

- 11673 D.D. Sutton, strain XT105, Univ. of California. 1953. M.K. Patel strain 7. Host: Tamarindus indica.

### Xanthomonas translucens (Jones et al.) Dowson

- 9000 W.H. Burkholder, strain XT6, Cornell Univ. 1942.  
 9002 W.H. Burkholder, strain XT8, Cornell Univ. 1949.  
 10731 W.H. Burkholder, strain XT1, Cornell Univ. 1949. From barley.  
 10768 A.J. Riker, strain PH-1-6, Univ. of Wisconsin. 1950. From timothy.  
 10769 A.J. Riker, strain AG-27-2, Univ. of Wisconsin. 1950. From quack grass.  
 10770 A.J. Riker, strain H-20-3, Univ. of Wisconsin. 1950. From barley.  
 10771 A.J. Riker, strain 3045-2, Univ. of Wisconsin. 1950.  
 10772 A.J. Riker, strain 10-6-3, Univ. of Wisconsin. 1950. From rye.

### Xanthomonas trichodesmae Patel

- 11676 D.D. Sutton, strain XT106, Univ. of California. 1953. M.K. Patel strain 15. Host: Trichodesma zeylandicum.

### Xanthomonas uppalii Patel

- 11641 M.P. Starr, strain XU, Univ. of California. 1953. M.K. Patel strain 2. Host: Ipomoea muricata. Indian Phytopath., 1948, 1, 67.

## BACTERIA

### Xanthomonas vesicatoria (Doidge) Dowson

11551 M.P. Starr, strain XV23, Univ. of California. 1953. From tomato.

11633 W.H. Burkholder, strain XV25, Cornell Univ. 1953. From pepper.

### Xanthomonas vignicola Burkholder

11648 and 11649 W.H. Burkholder, strains XV18 and XV19, Cornell Univ. 1953. From cowpeas. *Phytopath.*, 1944, 34, 431.

### Xanthomonas vitians (Brown) Dowson

11525 W.H. Burkholder, strain XL3, Cornell Univ. 1953. *Phytopath.*, 1954, 44, 592.

### Zymomonas mobilis (Lindner) Kluyver and van Niel

10988 (*Pseudomonas lindneri*) NRRL, strain B-806. 1952.

## BACTERIOPHAGES

The American Type Culture Collection has the following bacteriophages available (the phage is identified by the host species name and ATCC strain number followed by the letter B where there is a single phage for a given host, or by the letter B followed by subscripts B<sub>1</sub>, B<sub>2</sub>, etc.) where there is more than one phage specific for a given host strain; phage strain number is followed by the donor's name, his designation for the phage strain, his address, the date of deposit in the ATCC, references to the literature, and the donor's designation for the host):

### Azobacter vinelandii Lipman

- 12518-B O. Wyss, Univ. Texas. 1956. Jour. Bact., 1955, 70, 486.  
Host strain O.

### Bacillus anthracis Cohn

- 11949-B Elinor McCloy, strain W alpha, London School of Hygiene and Tropical Medicine. 1954. Jour. Hygiene, 1951, 49, 114.  
Host strain Davis.

### Bacillus brevis Migula

- 10027-B N.R. Smith, USDA. 1946. Host strain 605.

### Bacillus cereus Frankland and Frankland

- 7064-B N.R. Smith, USDA. 1938. Host strain 201.

### Bacillus cereus var. mycoides (Flügge) Smith et al.

- 11986-B A.P. Krueger, Univ. Calif. 1954. Jour. Gen. Phys. 1952, 35, 6. Host strain N.  
12826-B D.M. Bertucci, "Phagus pertinax", Univ. Oregon, Eugene. 1957. Host strain A, Variant IV. (ATCC No. 12827, "B. mycoides" strain A, parent adherent series also susceptible.)

### Bacillus megaterium de Bary

- 11478-B P.B. Cowles, strain M1, Yale University, New Haven, Conn. 1953. Host strain S (A.D. Hershey's strain PR3E).

### Bacillus polymyxa (Prazmowski) Migula

- 12050-B<sub>1</sub>, -B<sub>2</sub>, -B<sub>3</sub>, -B<sub>4</sub> A.E. Francis, strains A, B, C, and D, Wellcome Research Laboratory, Beckenham, England. 1955. Jour. Gen. Microbiology, 1949, 3, 425. Host strains CN 1417, CN2002, CN2366, CN2161, and CN2222.

### Bacillus subtilis Cohn emend. Prazmowski

- 12139-B N.Y. Botanical Garden (I.N. Asheshov collection). 1955. Originally from Commercial Solvents Corp. Host strain CSC.  
12140-B N.Y. Botanical Garden (I.N. Asheshov collection). 1955. Originally from D'Herelle Lab., Paris. Host strain NB.

### Bacillus sp. (thermophilic)

- 12016-B C. Georgi, Univ. Nebraska. 1955. Proc. Soc. Exp. Biol. and Med., 1955, 88, 373. Host strain National Canners Ass'n. 2184.

### Corynebacterium diphtheriae (Flügge) Lehmann and Neumann

- 11951-B N.B. Groman, strain B, Univ. Washington, Seattle. 1954. Jour. Bact., 1953, 66, 178. Host strain C4B.

## BACTERIOPHAGES

### Corynebacterium pseudotuberculosis (Buchanan) Ebersson

- 12519-B D.H. Howard, Univ. Calif. Medical Center, Los Angeles.  
1955. Host strain Ov5.

### Corynebacterium sp.

- 12052-B D.H. Howard, strain DLC 2921/49. 1955. J. Bact., 1954,  
68, 316. Host strain DLC 842/50.

### Escherichia coli (Migula) Castellani and Chalmers

- 8677-B W.J. Elford, strain C36, Nat'l. Inst. for Med. Res.,  
London. Jour. Path. Bact., 1933, 36, 307. Host strain C36.  
11303-B<sub>1</sub>, -B<sub>2</sub>, -B<sub>3</sub>, -B<sub>4</sub>, -B<sub>5</sub>, B<sub>6</sub>, and -B<sub>7</sub> S.E. Luria, strains T<sub>1</sub>  
through T<sub>7</sub>, Univ. Illinois. 1952. Host strain B.  
12141-B N.Y. Botanical Garden (I.N. Asheshov collection), strain 5.  
1955. Originally from J.W. MacNeal collection. Host  
strain C.  
12142-B<sub>1</sub>, -B<sub>2</sub>, -B<sub>3</sub>, -B<sub>4</sub>, and -B<sub>5</sub> Same source as above, strains  
49B, 24B, 50Br, 53 alpha, and FCZ. 1955. Originally  
from D'Herelle Labs., Paris. Host strain FCb.  
12143-B Same source as above, strain L2. 1955. Originally from  
A. Schatz. Host strain L2.  
12144-B<sub>1</sub>, -B<sub>2</sub>, -B<sub>3</sub>, and -B<sub>4</sub> N.Y. Botanical Garden (I.N. Asheshov  
collection), strains 6B, 8, 6A, and 6C. 1955. Host strain  
Yoeman.  
12404-B<sub>1</sub>, -B<sub>2</sub> Same source as above, strains 2 and 4. 1955. Host  
strain alpha.

### Mycobacterium phlei Lehmann and Neumann

- 11725-B J.M. Desranleau, Ministry of Health, Montreal, Canada.  
1954.  
11758-B G. Penso (through Domenico Marotta), Phagus phlei,  
Istituto Superiore di Sanita, Rome, Italy. 1954. Host  
strain Timoteo.

### Mycobacterium smegmatis (Trevisan) Lehmann and Neumann

- 11727-B J.M. Desranleau, Ministry of Health, Montreal, Canada.  
1954.  
11762-B G. Penso (through Domenico Marotta), Phagus smegmatis,  
Istituto di Sanita, Rome, Italy. 1954. Host strain ATCC  
No. 11727.

### Mycobacterium sp.

- 11759-B Same source as above, Phagus lacticola. 1954. Host  
strain Milch.  
11760-B Same source as above, Phagus pellegrini. 1954. Host  
strain Pellegrino.  
11761-B Same source as above, Phagus rabinowitschi. 1954. Host  
strain Rabinowitsch.

### Neisseria perflava Bergey et al.

- 12739-B R.L. Stone, strain A, Indiana Univ. 1957. Jour. Bact.,  
1956, 71, 516. Host strains 7A1 and 7A2.



## BACTERIOPHAGES

### Pasteurella pestis (Lehmann and Neumann) Holland

- 11953-B J.B. Gunnison, Univ. Calif., San Francisco. 1954. Jour. Infect. Dis., 1951, 88, 254. Host strain A1122.

### Pseudomonas aeruginosa (Schroeter) Migula

- 12055-B<sub>1</sub>, -B<sub>2</sub>, and -B<sub>3</sub> Lois Dickinson, strains Pa, Pb, and Pc, Boots Pure Drug Co., Nottingham, England. 1955. Jour. Gen. Microbiol., 1952, 6, 1. Host strain C10.

- 12175-B<sub>1</sub>, -B<sub>2</sub>, -B<sub>3</sub>, and B<sub>4</sub> New York Botanical Garden (I. N. Asheshov collection), strains 1, 2, 2A, and 2B. 1955. Originally from J.W. MacNeal collection.

### Rhizobium leguminosarum Frank emend. Baldwin and Fred

- 11954-B J.A. Kleczkowski, strain 317, Rothamstead Experimental Sta., Hertfordshire, England. 1954. Jour. Gen. Microbiology, 1953, 8, 135. Host strain P11.

### Salmonella paratyphi (Kayser) Castellani and Chalmers

- 12176-B N.Y. Botanical Garden (I.N. Asheshov collection), strain Paratyphoid A. 1955. Originally from J.W. MacNeal collection.

### Salmonella schottmuelleri (Winslow et al.) Bergey et al.

- 12178-B Same source as above, Paratyphoid B strain 2. (Adam's strain PB- Jour. Immunol. 1951, 66, 477.) 1955. Host strain 2.

- 12410-B Same source as above, Paratyphoid B strain 1. 1955.

### Salmonella typhosa (Zopf) White

- 12179-B Same source as above, strain 1. 1955. Originally from Ena Clark. Host strain Eberthella typhosa 1.

### Salmonella sp. (ser. poona)

- 12177-B<sub>1</sub>, and -B<sub>2</sub>. Same source as above, strains 1 and 2. 1955.

### Salmonella sp.

- 12405-B<sub>1</sub>, -B<sub>2</sub>, -B<sub>3</sub>, and -B<sub>4</sub> N.Y. Botanical Garden (I. N. Asheshov collection), strains X, XI, XII, and XIII. 1955. Host strain 373.

- 12406-B<sub>1</sub>, -B<sub>2</sub>, -B<sub>3</sub>, -B<sub>4</sub>, -B<sub>5</sub>, -B<sub>6</sub>, -B<sub>7</sub>, -B<sub>8</sub>, and B<sub>9</sub> Same source as above, strains I, II, III, IV, V, VI, VII, IX, and XV. 1955. Host strain 374.

### Serratia marcescens Bizio

- 11634-B M.M. Wasserman, strain IV, Beth Israel Hospital, N.Y. City. 1953. Jour. Bact., 1953, 66, 119; Jour. Bact., 1954, 68, 320. Host strain 4.

### Shigella dysenteriae (Shiga) Castellani and Chalmers

- 12180-B<sub>1</sub>, and -B<sub>2</sub> N.Y. Botanical Garden (I.N. Asheshov collection), strains S-13 and 2. 1955. Originally from W.J. Elford. (Strain S-13 is one of Burnet's original types. See Jour. Path. Bact., 1933, 37, 179.) Host strain Y6R2.

### Shigella flexneri Castellani and Chalmers

- 12181-B<sub>1</sub>, -B<sub>2</sub>, and -B<sub>3</sub> Same source as above, strains 2, 3, and 4. 1955. Originally from M. Rakieten.

- 12661-B M.H. Adams, strain D20, N.Y. University. 1956. Jour. Bact., 1955, 70, 253. Host strain W.

## BACTERIOPHAGES

### Staphylococcus aureus Rosenbach

- 6538-B Ruth E. Gordon, ATCC. 1944. Host strain FDA 209.  
11987-B A.P. Krueger, strain P1, Univ. Calif. 1954. Jour. Gen. Physiol., 1954, 37, 685. Host strain K1.  
11988-B Same source as above, strain P14. 1954. Host strain WF145.  
12145-B through 12150-B N.Y. Botanical Garden (I.N. Asheshov collection), strains 1 through 6 respectively. 1955.  
12151-B through 12154-B Same source as above, strains 8 through 11 respectively. 1955.  
12155-B and 12156-B Same source as above, strains 13 and 14. 1955.  
12157-B through 12159-B Same source as above, strains 16 through 18. 1955.  
12160-B Same source as above, strain 20. 1955.  
12161-B Same source as above, strain S3K. 1955. Originally from A. Schatz. N.Y. Botanical Garden (I.N. Asheshov collection).  
12411-B Strain 12. 1955.

### Staphylococcus muscae Glaser

- 12162-B Same source as above. 1955. Originally from N.A. Boulgakov Collection.

### Streptococcus cremoris Orla-Jensen

- 11602-B C.C. Prouty, strain hp, State College of Washington, Pullman. 1953. Host strain HP.  
11603-B Same source as above, strain w, 1953. Host strain W.

### Streptococcus lactis (Lister) Löhnis

- 11955-B F.E. Nelson, strain F-68, Iowa State College, Ames. 1954. Host strain FD-56.

### Streptococcus pyogenes

- 12201-B NCTC, strain A1. 1955. Host strain NCTC 8370 (R/50/154) Type I.  
12203-B NCTC, strain A6. 1955. Host strain NCTC 8709, Type 6 glossy.  
12204-B NCTC, strain A25. 1955. Host strain NCTC 8306, Mathews Type 25.  
12205-B NCTC, strain A27. 1955. Host strain NCTC 8328, (SF 40) Type 27.  
12206-B NCTC, strain A5. 1955. Host strain Dekens, Type 5.

### Streptococcus sp.

- 12163-B N.Y. Botanical Garden (I.N. Asheshov collection), streptophage strain 2. 1955. Originally from N.A. Boulgakov Collection. Host strain 2.  
12164-B Same source as above, streptophage strain 3. 1955. Host strain 3.  
12165-B Same source as above, streptophage strain 4, 1955. Host strain 4.  
12166-B Same source as above, streptophage strain 6, 1955. Host strain 6.  
12167-B N.Y. Botanical Garden (I.N. Asheshov collection), streptophage strain 7. Originally from N.A. Boulgakov Collection. Host strain 7.

## BACTERIOPHAGES

### Streptococcus sp. (Continued)

- 12168-B Same source as above, enterococcus phage 5/7. 1955.  
Host strain 7.
- 12169-B Same source as above, enterococcus phage 1A. 1955.  
Host strain Enterococcus 1.
- 12170-B Same source as above, enterococcus phage 1B. 1955.  
Host strain Enterococcus 1.
- 12171-B<sub>1</sub> and B<sub>2</sub> Same source as above, enterococcus phage strains  
2A and 2B. 1955. Host strain Enterococcus 2.
- 12182-B Same source as above, enterococcus phage strain 4. 1955.  
Host strain Enterococcus 4.

### Streptomyces griseus (Krainsky) Waksman and Henrici

- 11984-B F. Carvajal, strain 22653, Schenley Labs. Mycologia 1953,  
45, 209. Host strain SL-842.
- 12173-B N.Y. Botanical Garden (I.N. Asheshov collection). 1955.  
Originally from H.B. Woodruff, Merck and Co.

### Vibrio comma (Schroeter) Winslow et al.

- 12174-B<sub>1</sub>, -B<sub>2</sub>, -B<sub>3</sub>, -B<sub>4</sub>, -B<sub>5</sub>, -B<sub>6</sub>, -B<sub>7</sub>, -B<sub>8</sub>, -B<sub>9</sub>, -B<sub>10</sub>, and B<sub>11</sub> N.Y.  
Botanical Garden (I.N. Asheshov collection), strains B, C,  
D, E, F, G, H, K, M, R, and J, respectively. Originally  
from J. White collection. 1955. Host strain 1077.

### Vibrio sp. (saprophytic)

- 11985-B A.P. Krueger, Univ. California. 1954. Proc. Soc. Exp.  
Biol. Med., 1952, 81, 254, 371.

### Xanthomonas pruni (Erw. Smith) Dowson

- 10016-B<sub>1</sub>, -B<sub>2</sub>, -B<sub>3</sub>, -B<sub>4</sub>, -B<sub>5</sub>, and -B<sub>6</sub> S.S. Goldberg, strains XP1,  
XP2, XP3, XP4, XP5, and XP8, Camp Detrick, Frederick,  
Maryland. 1955. Phytopathology 1953, 43, 27. Host  
strain XP11.

## BACTERIOPHAGES

### Lysogenic Bacteria

- Bacillus cereus Frankland and Frankland  
11950 Elmer McCloy, strain W, School of Hygiene and Tropical  
Medicine, Univ. of London. 1954. (B. anthracis 11949\*.)
- Bacillus cereus var. mycoides (Flügge) Smith et al.  
12828 D.M. Bertucci, Univ. of Oregon. 1954. (B. cereus var.  
mycoides 12826\* and 12827\*.)
- Bacillus megaterium de Bary  
11561a P.B. Cowles, strain C9(M1), Yale Univ. 1953.  
(B. megaterium 11478\*.)  
11561b Same source as above. Strain C9(M2). 1953.  
(B. megaterium 11478\*.)  
11561c Same source as above. Strain C9(M3). 1953.  
(B. megaterium 11478\*.)  
11561d Same source as above. Strain C9(M4). 1953.  
(B. megaterium 11478\*.)  
11561e Same source as above. Strain C9(M5). 1953.  
(B. megaterium 11478\*.)  
11562 Same source as above. Strain 899. 1953.  
(B. megaterium 11478\*.)
- Corynebacterium diphtheriae (Flügge) Lehmann and Neumann  
11952 N.B. Groman, strain C4 beta, Univ. of Washington,  
Seattle. 1954. (C. diphtheriae 11951\*.)
- Escherichia coli (Migula) Castellani and Chalmers  
10798 C.E. Clifton, strain K-12(Lambda), Stanford Univ. 1950.  
(E. coli 12435\*.)  
11125 G. Bertani, Lisbonne and Carrère's lysogenic strain,  
Univ. of Illinois. 1950. (E. coli 11126\*.)
- Shigella dysenteriae (Shiga) Castellani and Chalmers  
11456b G. Bertani, strain SH(P2). 1950. (E. coli 11456a\*.)

### Miscellaneous Phage-sensitive Strains

- Bacillus cereus var. mycoides (Flügge) Smith et al.  
12827 D.W. Bertucci, strain A, parent adherent series, Univ.  
of Oregon. 1954. (B. cereus var. mycoides 12828\*.)
- Escherichia coli (Migula) Castellani and Chalmers  
11126 G. Bertani, Univ. of Illinois. 1952. (E. coli 11125\*.)  
12435 J. Lederberg, strain W1485, Univ. of Wisconsin. 1956.  
(E. coli 10798\*.)
- Shigella dysenteriae (Shiga) Castellani and Chalmers  
11456a G. Bertani, strain SH, Univ. of Illinois. 1953.  
(S. dysenteriae 11456b\*.)

\* Indicator strain (See bacteriophage list or list of miscellaneous phage-sensitive strains).

≠ Lysogenic strain (See list of lysogenic strains).



## FILAMENTOUS FUNGI AND YEASTS

### Absidia blakesleeana Lendner

10148a (+) and 10148b (-) NRRL, strains 1304 and 1306. 1946.

### Absidia butleri Lendner

8989 V.M. Cutter, Jr., strain 175, Cornell Univ. 1942.

### Absidia coerulea Bainier

1359b (-) A.F. Blakeslee, CIW. 1938.

10738a (+) and 10738b (-) NRRL, strains 1315(+) and 1312(-). 1949.

### Absidia corymbifera (Cohn) Saccardo and Trotter

7909 (A. lichtheimii) A.F. Blakeslee, CIW. 1940.

8988 V.M. Cutter, Jr., strain 217, Cornell Univ. 1942.

### Absidia cylindrospora Hagem

11516 E.S. Reynolds, Univ. of Miami, Fla. 1953.

### Absidia glauca Hagem

6776a (+) and 6776b (-) A.F. Blakeslee, CIW. 1938.

7852a (+) and 7857b (-) A.F. Blakeslee. 1938.

7925 V.M. Cutter, Jr., strain 21, Cornell Univ. 1941.

### Absidia italiana (Perin and Costantin) Dodge

8994 and 8995 V.M. Cutter, Jr., strains 145 and 146, Cornell Univ. 1942.

### Absidia japonica (Saito) Lendner

11619 K. Sato, strain 5419, IF0. 1953.

### Absidia orchidis (Vuillemin) Hagem

6647 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.

6811 (-) A.F. Blakeslee, strain C 1016, CIW. 1938.

8990 V.M. Cutter, Jr., strain 156, Cornell Univ. 1942.

### Absidia ramosa (Lindt) Lendner

11613 (+) NRRL, strain 1332. A.F. Blakeslee, strain C 1059. 1953.

### Absidia repens van Tieghem

6780a (+) and 6780b (-) A.F. Blakeslee, CIW. 1938.

### Absidia spinosa Lendner

6648 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.

### Absidia ucrainica (Naumov)

8991 V.M. Cutter, Jr., strain 144, Cornell Univ. 1942.

### Absidia sp.

10239 W.W. Diehl, strain 512 C, USDA. 1947. From Siam, used in malting rice.

### Achlya ambisexualis J.R. Raper

11399 (+) and 11400 (-) J.R. Raper, strains 734 and E87, Univ. of Chicago. 1952.

### Achlya americana Humphrey

10977 J.N. Couch, Univ. of North Carolina. 1951.

### Achlya bisexualis Coker

11397 (+) and 11398 (-) J.R. Raper, strains 355 and E247, Univ. of Chicago. 1952.

### Achlya crenulata Ziegler

11315 CBS. 1952.

### Achlya flagellata Coker

10978 J.N. Couch, Univ. of North Carolina. 1951.

## FUNGI AND YEASTS

### Achlya racemosa Hildebrand

11492 CBS. 1952.

### Acladium castellanii Pinoy

760 A. Castellani, Tulane Univ. 1926.

11600 CBS. 1953. A. Castellani.

### Acremoniella brevis: See *Monotospora brevis*

### Acremoniella lutzi Arêa Leão and Lobo

9462 A.E. de Arêa Leão, strain 866, IOC. 1947.

From clinical maduramycosis, Brazil.

### Acremoniella rugulosa Arêa Leão

9469 A.E. de Arêa Leão, strain 1612, IOC. 1947. From clinical mycetoma, Brazil.

### Acremonium potronii: See *Cephalosporium potronii*

### Arostlagmus gambarensis Corda ( *Nectria inventa* Pethybridge )

11254 CBS. 1952.

### Acrothecium arenarium M. and F. Moreau

10713\* CBS. 1949.

### Acrothecium capsici Turconi

10714 CBS. 1949.

### Acrothecium robustum Gilman and Abbott

10715 CBS. 1949.

### Actinomucor elegans (Eidam) Benjamin and Hesseltine

11379 (A. repens) K. Sato, strain 4020, IFO. 1952.

### Aleurisma carnis (Brooks and Hansford) Bisby

11501\* and 11502 (*Sporotrichum carnis*). CMI, strains 23281 and 46340. 1953. From refrigerated meat and soil, respectively.

11507 and 11508 CMI, strains 32065 and 46341. 1953. From stored eggs and soil, respectively.

### Allescheria boydii Shear (*Monosporium apiospermum*)

9258 C.W. Emmons, strain 8203, NIH. 1943. From clinical mycetoma, Canada.

9468 A.E. de Arêa Leão, strain 1603, IOC. 1947.

10808 Lucille K. Georg, strain A-362, CDC. 1950. From soil.

11657 L. Ajello, strain A-722, CDC. 1953. From soil.

11961 F.J. Herrero, Univ. Nac. Tucuman, Argentina. 1954. From Madura foot.

### Allomyces anomalus Emerson<sup>1</sup>

10982 J.N. Couch, Univ. of North Carolina. 1951.

### Allomyces arbusculus Butler

10983 J.N. Couch, Univ. of North Carolina. 1951.

### Allomyces javanicus Kniep

10984 J.N. Couch, Univ. of North Carolina. 1951.

### Allomyces moniliiformis Coker and Braxton

10985 J.N. Couch, Univ. of North Carolina. 1951.

### Alternaria brassicae (Berkeley) Saccardo

12250 (*Macrosporium herculeum*) E.G. Simmons, strain 1733, QMRDC. 1955. CBS; Bolle strain III, monospore isolate from *Cochlearia officinalis*.

<sup>1</sup>Allomyces cultures are sent out as dried thalli on filter paper and are not bacteria-free.

## FUNGI AND YEASTS

- Alternaria brassicicola (Schweinitz) Wiltshire  
 6650 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938. CBS.  
 12251 (*Alternaria circinans*) E.G. Simmons, strain 280, QMRDC. 1955.
- Alternaria consortialis (Thuemen) Groves and Hughes  
 12654 (*Stemphylium consortiale*) E.G. Simmons, strain 147-C, QMRDC. 1956.
- Alternaria dianthicola Neergaard  
 11782 F. Beran, Bundesanst. Pflanzenschutz, Vienna. 1954.
- Alternaria gossypina (Thuemen) Hopkins  
 6655 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.
- Alternaria humicola Oudemans  
 11892 CBS. 1954.
- Alternaria iridis Cooke and Ellis  
 6657 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.
- Alternaria kikuchiana Tanaka  
 11570 K. Sato, strain 5779, IFO. 1953.
- Alternaria linicola Groves and Skolko  
 11802 Constance A. Bowerman, Canada Dept. Agric., Ottawa. 1954.
- Alternaria porri (Ellis) Sawada  
 11783 F. Beran, Bundesanst. Pflanzenschutz, Vienna. 1954.  
 11800 Constance A. Bowerman, strain 53-75, Canada Dept. Agric., Ottawa. 1954.
- Alternaria radicina: See *Stemphylium radicinum*
- Alternaria senecionis Neergaard  
 11784 F. Beran, Bundesanst. Pflanzenschutz, Vienna. 1954.
- Alternaria solani (Ellis and Martin) Sorauer  
 6396 J.G. Harrar, Virginia Polytech. Inst., Blacksburg. 1938.  
 11708 P.W. Brian, strain 408, Butterwick Res. Lab., Welwyn, Herts., England, 1951. CMI strain 46816. Production of alternaric acid.  
 11785 F. Beran, Bundesanst. Pflanzenschutz, Vienna. 1954.
- Alternaria tenuis Nees ex Corda  
 6663 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938. CBS.  
 11612 F.A. Weiss, ATCC. 1953. From peony leaf spot.  
 11680 F.A. Weiss, ATCC. 1953. From onion leaf.
- Alternaria tenuissima (Fries) Wiltshire  
 11854 CBS. 1954. Monospore isolate from parsley, by P. Neergaard, 1940.
- Alternaria zinniae Pape  
 11786 F. Beran, Bundesanst. Pflanzenschutz, Vienna. 1954.  
 11801 Constance A. Bowerman, strain M-29, Canada Dept. Agric., Ottawa. 1954.
- Alternaria sp.  
 9100 NRRL, strain 1284. 1943. Hopkins strain, from C. Thom Collection.
- Amauroascus niger Schroeter  
 12252 L. W. Durrell, Colorado A. and M. College. 1955. Cf. R.K. Benjamin, El Aliso, 1956, 3, 301.
- Ampelomyces quisqualis Cesati  
 11098 (*Cicinnobolus cesati*) CBS. 1951.

## FUNGI AND YEASTS

- Anixiopsis multispora: See Pseudoeurotium multisporum  
Anthostomella contaminans (Durieux and Montagne) Saccardo  
 7888 J.A. Stevenson, strain 5316, USDA. 1940.  
Aphanomyces cladogamus Drechsler  
 11099 CBS. 1951.  
Aphanomyces cochlioides Drechsler  
 11118 CBS. 1952.  
Aphanomyces euteiches Drechsler  
 11846 CBS. 1954. P. f. 2, from Viola.  
Apodachlya brachynema (Hildebrand) Pringsheim  
 10949 J.N. Couch, Univ. of North Carolina. 1951.  
Arachniotus citrinus Massee and Salmon (cf. Amauroascus and  
Byssochlamys)  
 12090 B. West, strain A 828, CDC. 1955.  
Armillaria mellea (Fries) Quélet  
 11113 and 11114 Frances F. Lombard, strains 70973-R and  
 Madison 703, USDA. 1951.  
Arthrobotrys conoides Drechsler  
 11115 CBS. 1952.  
Arthrobotrys robusta Duddington  
 11856\* CBS. 1954. CMI strain 36118; C.L. Duddington strain 63.  
Arthrobotrys superba Corda var. oligospora (Fresenius) Lindau  
 11572 K. Sato, strain 4835, IFO. 1953.  
Aschersonia aleyrodis Weöber  
 11323 CBS. 1952.  
Ascochyta gossypii Sydow  
 12786 Katharina Bollenbacher, strain 1611 Ma, Univ. of Arkansas.  
 1957. From cotton.  
 12787 C.D. Ranney, Texas Agric. Expt. Sta. 1957. From cotton.  
Ascochyta imperfecta Peck  
 12087 Helen S. Yu, USDA. 1955.  
Ascochyta pisi Libert  
 10954 D.J. Hagedorn, strain 47-43, Univ. of Wisconsin. 1951.  
Ascocybe grovesii Wells: See Cephaloascus fragans  
Ascosphaera apis (Maasen ex Claussen) Olive and Spiltoir  
 11933 W.F. Jeffers, Univ. of Maryland, 1954. Chas. Pfizer Co.  
 strain 29422. Mycologia, 1955, 42, 238.  
Ascotricha guamensis Ames  
 11219\* L.M. Ames, strain 3, ERDC. 1952. Mycologia 1951, 43, 30.  
Ashbya gossypii (Ashby and Nowell) Guilliermond<sup>2</sup>  
 8717 W.J. Robbins, New York Botanical Garden. 1942. Production  
 of riboflavin (also the following strain, derived from it.)  
 10895 NRRL, strain Y-1056. 1951.  
Aspergillus albus Wilhelm: See A. candidus  
Aspergillus alliaceus Thom and Church  
 1024 C. Thom, strain 5506, USDA. 1938.  
 10060 C. Thom, strain 4656, USDA. NRRL strain 315.

<sup>2</sup> Approval of the U.S. Department of Agriculture is prerequisite to sending this culture to certain states.



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- Aspergillus amstelodami (Mangin) Thom and Church  
1001 C. Thom, strain 4013, USDA. 1938.  
10065 C. Thom, strain 109, USDA. 1946. NRRL strain 89.
- Aspergillus asperescens Stolk  
11079 (*A. humicola*) P. W. Brian, strain 385, Butterwick Res. Lab., England. 1951. Production of humicolin.
- Aspergillus auricomus (Guégen) Saito  
11094 K. Sato, strain 4418, IFO. 1954.
- Aspergillus awamori Nakazawa  
11358 K. Sakaguchi, strain K-6615, Univ. of Tokyo. 1952.  
11382 K. Sato, strain 4398, IFO. 1952.
- Aspergillus awamori Nakazawa var. hominis Chaves-Batista and Maia  
12074\* A. Chaves-Batista, strain 238, Univ. of Recife, Brazil. 1955.
- Aspergillus caespitosus Raper and Thom  
11256\* NRRL, strain 1929. 1952.
- Aspergillus candidus Link ex Fries  
1002 C. Thom, strain 106, USDA. 1938. NRRL strain 303.  
11380 and 11381 (*Aspergillus albus*) K. Sato, strains 4310 and 4311, IFO. 1952.  
12070 A. Chaves-Batista, strain 259, Univ. of Recife, Brazil. 1955.
- Aspergillus carbonarius (Bainier) Thom  
1025 C. Thom, strain 4030.1, USDA. 1938. NRRL strain 369.
- Aspergillus chevalieri (Mangin) Thom and Church  
9908 C. Thom, strain 4122.1, USDA. 1945. NRRL strain 77.
- Aspergillus clavato-nanica Chaves-Batista et al.  
12413\* A. Chaves-Batista, strain DMUR 532, Univ. of Recife, Brazil. Produces diethylarsine on arsenic substrate.
- Aspergillus clavatus Desmazières  
1007 NRRL, strain 1656. 1955. QMRDC strain 1276.  
9192 and 9198 S. A. Waksman, strains 129 (145) and 164 (147), Rutgers Univ. 1943. Production of clavacin.  
9598, 9599 and 9600 NCTC, strains 978 (Thom 107, NRRL 1), 5598A (NZ 789), and 3886 (Ac. 65). 1944. Production of clavacin.  
9601 and 9602 NCTC, strains 5598 (NZ 737) and 3887 (Ac. 86). 1944.  
10059 C. Thom, strain 4754.3, USDA. 1946. NRRL strain 4.
- Aspergillus conicus Blockwitz  
11911 K. Sato, strain 4047, IFO. 1954.
- Aspergillus echinulatus (Delacroix) Thom and Church  
1021 C. Thom, strain 4481, USDA. 1938. NRRL strain 131.
- Aspergillus effusus Tiraboschi  
1010 C. Thom, strain 130, USDA. 1945. NRRL strain 506.
- Aspergillus fasciculatus Chaves-Batista and Maia  
11970 and 12073 A. Chaves-Batista, strains 101 and 236, Univ. of Recife, Brazil. 1954.
- Aspergillus fischeri Wehmer  
1020\* C. Thom, strain 4651.2, USDA. 1938. NRRL strain 181.
- Aspergillus flavipes (Bainier and Sartory) Thom and Church  
1030 C. Thom, strain 114, USDA. 1938. NRRL strain 286.  
11013 D. Perlman, strain MD 2472, Squibb Inst. Med. Res., New Brunswick, N.J. 1951. U.S. Patent 2,768,928.

## FUNGI AND YEASTS

### Aspergillus flavus Link ex Fries

- 1003 C. Thom, strain 292-108, USDA. 1938. NRRL strain 482.
- 9170 E. C. White, Johns Hopkins Univ. 1943. Production of aspergilllic acid. J. Bact., 1943, 45, 433.
- 9296 S.A. Waksman, strain 137, Rutgers Univ. 1944. Production of flavicin.
- 9376 NRRL, strain 458. 1947.
- 9643 W.H. Weston, strain 997, Harvard Univ. 1944. Other strain designations: Aust. 3, QMRDC 380. Military specifications for fungus resistance tests.
- 9807 M.F. Day, strain 42, Australian Sci. Res. Liaison Office. 1945. Resistant to salicylanilide.
- 10124 NRRL, strain 484. 1946. Thom strain 3538. Production of kojic acid. J. Am. Chem. Soc., 1931, 53, 774.
- 11495, 11496 and 11497 NRRL, strains 492, 627 and 1946. 1953.
- 11498 and 11499 NRRL, strains 2210 and 2211. 1953.
- 11655 Mary H. Downing, strain 4m, QMRDC. 1954. NRRL strain A-433. Military specifications for fungus resistance tests.

### Aspergillus flavus-oryzae group

- 11500 NRRL, strain 453. 1953.

### Aspergillus foetidus Thom and Raper

- 11359 (A. aureus Nakazawa) K. Sakaguchi, strain R-4832, Univ. of Tokyo. 1952.

### Aspergillus fumigatus Fresenius

- 1022 C. Thom, strain 118, USDA. 1932. NRRL strain 163.
- 1028 (Aspergillus cellulosa) C. Thom, USDA. 1938. NRRL strain 164.
- 6285 H.W. Schoening, USDA. 1938. From pulmonary lesion of chicken.
- 9197 S.A. Waksman, strain 84 (36). Rutgers Univ. 1943. Production of fumigacin and gliotoxin.
- 10827 C.W. Emmons, strain 5225, NIH. 1950. From pulmonary lesion of penguin.
- 10894 CMI, strain 45338. 1951. J.H. Birkinshaw, strain M-400. Production of spinulosin. Biochem. J., 1945, 39, 70.

### Aspergillus giganteus Wehmer

- 10059 C. Thom, strain 5581.13A, USDA. 1946. NRRL strain 10.

### Aspergillus gracilis Bainier

- 11905 (A. caesiellus) K. Sato, strain 4882, IFO. 1954.

### Aspergillus glaucus Desmazz var. sartoryi (Bouloge) Chaves-Batista et al.

- 11969 and 12071 A. Chaves-Batista, strains 246 and 262, Univ. of Recife, Brazil. 1954.

### Aspergillus heteromorphus Chaves-Batista and Maia

- 12064 A. Chaves-Batista, strain 2699, Univ. of Recife, Brazil. 1954.

### Aspergillus inuii Sakaguchi et al.

- 11360\* K. Sakaguchi, strain Ro-436, Univ. of Tokyo. 1952.

### Aspergillus itaconicus Kinoshita

- 10021\* NRRL, strain 161. 1946. CBS. K. Kinoshita.

### Aspergillus japonicus Saito

- 1034 C. Thom, strain 4030.3, USDA. 1938. NRRL strain 358. A.F. Blakeslee.

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### Aspergillus luchuensis Inui

1035 C. Thom, strain 4646.8, USDA. 1938.

10061 C. Thom, strain 4291.3, USDA. 1946. NRRL strain 356.

### Aspergillus mangini (Mangin) Thom and Raper

10076 C. Thom, strain 5619.19, USDA. 1946. NRRL strain 114.

### Aspergillus montevidensis Talice and MacKinnon

10077\* C. Thom, strain 5290, USDA. 1946. NRRL strain 108.

From clinical otomycosis.

### Aspergillus nakazawai Sakaguchi et al.

11361 K. Sakaguchi, strain K-4134, Univ. of Tokyo. 1952.

### Aspergillus nidulans (Eidam) Winter

10074 C. Thom, strain 4640.5, USDA. 1946. NRRL strain 187.

11267 R. W. Thoma, strain M 4194, Squibb Inst. Med. Res., New Brunswick, N.J. 1952.

### Aspergillus niger van Tieghem

1004 C. Thom, strain 111, USDA. 1938. NRRL strain 322; CMI 50565.

1015 C. Thom, strain 3528.7 (TC 167), USDA. 1932. CMI 31821. Production of citric acid. J. Biol. Chem., 1917, 31, 15.

6275 C. Thom, strain 4247, USDA. 1938. Steinberg strain, used in mineral nutrition studies; also QMRDC 458 (NRRL 334). Fungus resistance tests.

6276 C. Thom, strain 4704.878, USDA. 1938. Herrick and May strain; NRRL 368. Production of citric acid.

8740 and 9029 NRRL, strains 67 and 3. 1943. Production of gluconic and citric acids. J. Bact., 1946, 52, 557.

9142 NRRL, strain 599. 1943. Production of citric acid from molasses.

9642 W. H. Weston, Harvard Univ. 1944. Strain Aust. 26, QMRDC 386. Military specifications for fungus resistance tests.

10254 NRRL, strain 337. 1947. Production of amylase. J. Bact., 1947, 54, 159.

10535 L. M. Ames, ERDC. 1948. Mold resistance tests on paint.

10553 CBS, strain radium 1/1. 1949.

10575 CMI, strain 17454. 1949. Mold resistance tests on textiles.

10577 CMI, strain 27809. 1949. NCTC strain 7193. J. A. Benkiser, Ladenberg, Germany, strain XXII. Citric acid production.

10579 CMI, strain 31275. 1949. NCTC strain 2389. From clinical otomycosis.

10581 CMI, strain 31283. 1949. Mulder strain M. D. J. D. Nicholas, Long Ashton Research Sta. Assay of Mg, Cu, Zn and Mo in soils. Ann. Ferment., 1938, 4, 513.

10864 NRRL, strain 330. 1951. Production of maltase.

11394 D. Perlman, Squibb Inst. Med. Res. 1952. Wisconsin strain 72-2. Production of hydroxyprogesterone. J. Am. Chem. Soc., 1952, 74, 3962.

11414 S. M. Martin, Natl. Res. Council, Canada. 1952. Wisconsin strain 72-4. Production of citric acid from molasses. J. Bact., 1946, 52, 555.

### Aspergillus niger van Tieghem var. altipes Schiemann

10549 CBS. 1949.

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- Aspergillus niger mut. cinnamomeus (Schiemann) Thom and Raper  
1027 C. Thom, strain 3534.6, USDA. 1938. NRRL strain 348.
- Aspergillus niger van Tieghem mut. fusca Blochwitz  
10548 CBS. 1949.
- Aspergillus niger mut. schiemanni (Schiemann) Thom and Raper  
1040 C. Thom, strain 3534c, USDA. 1938. NRRL strain 361.
- Aspergillus niger van Tieghem f. tubingen Schober  
10550 CBS. 1949.
- Aspergillus niveo-glaucus Thom and Raper  
10075 C. Thom, strain 7053.2, USDA. 1946. NRRL strain 127.
- Aspergillus niveus Blochwitz  
12276 NRRL, strain 515. 1955.
- Aspergillus ochraceo-petaliformis Chaves-Batista and Maia  
12066\* A. Chaves-Batista, strain 270, Univ. of Recife, Brazil. 1955.
- Aspergillus ochraceus Wilhelm  
1008 and 1009 C. Thom, strains 112 (asclerotial) and 4399 (sclerotial), USDA. 1938.  
12337 NRRL, strain 416. 1955.
- Aspergillus oryzae (Ahlburg) Cohn  
1011 C. Thom, strain 113, USDA. 1932. CBS.  
7252 T.K. Walker, Univ. of Manchester, England. Production of kojic acid.  
7561 L.A. Underkofler, strain 22, Iowa State Coll. 1939.  
9102 NRRL, strain 692. 1943. Production of amylase.  
9362 NRRL, strain 1988. 1947. Proteolytic activity.  
10063 C. Thom, strain 290-Ao Old, USDA. 1946. K. Oshima. NRRL strain 458.  
10196 L.M. Ames, ERDC. 1946. Mold resistance tests on paint.  
11487, 11488, 11489 and 11490 NRRL, strains 494, 694, 695 and 696. 1953.  
11491, 11492, 11493 and 11494 NRRL strains 697, 2160, 2217 and 2220. 1953.  
11601 L.A. Underkofler, strain 38b, Iowa State Coll. 1953. Production of alpha amylase. J. Agric. and Food Chem., 1953, 1, 87.  
11866 Luz Baens-Arcega, Inst. Sci. and Tech., Manila. 1954. NRRL strain A-5777. Proteolytic activity. Philippine J. Sci., 1956, 85, 189.
- Aspergillus parasiticus Speare  
1018\* C. Thom, strain 3509a, USDA. 1938. NRRL strain 502. A.T. Speare. Parasitic on mealy bugs on sugar cane.
- Aspergillus penicilloides Spegazzini  
9122 NRRL, strain 151. 1943. Thom strain 7.
- Aspergillus phoenicis (Corda) Thom  
10698 NRRL, strain 363. 1949.
- Aspergillus pseudoglaucus Blochwitz  
10066 C. Thom, strain 5343, USDA. 1946. NRRL strain 40.
- Aspergillus quadrilineatus Thom and Raper  
12067 A. Chaves-Batista, strain 271, Univ. of Recife, Brazil. 1955.



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- Aspergillus repens (Corda) de Bary  
 9294 NRRL, strain 13, 1944.  
 10079 C. Thom, strain 5305.5, USDA. 1946. NRRL strain 17.
- Aspergillus ruber (Bremer) Thom and Church  
 9481 NRRL, strain 48. 1944. C. Thom, strain 4168.  
 10078 C. Thom, strain 134, USDA. 1946. NRRL strain 65.
- Aspergillus saitoi Sakaguchi et al.  
 11362\* K. Sakaguchi, strain H-217, Univ. of Tokyo. 1952.
- Aspergillus saitoi var. kagoshimaensis Sakaguchi et al.  
 11363\* K. Sakaguchi, strain K-3931, Univ. of Tokyo. 1952.
- Aspergillus sojae Sakaguchi and Yamada  
 11906 K. Sato, strain 4391, IFO. 1954.
- Aspergillus sulphureus (Fresenius) Thom and Church  
 1032 C. Thom, strain 4741, USDA. 1938. NRRL strain 386.
- Aspergillus sydowi (Bainier and Sartory) Thom and Church  
 1017 C. Thom, strain 5065.10, USDA. 1938. NRRL strain 247.  
 9507 O. Felsenfeld, Chicago Medical School. 1944.  
 12065 A. Chaves-Batista, strain 268, Univ. of Recife, Brazil. 1955.
- Aspergillus tamarii Kita  
 1005 C. Thom, strain 3565, USDA. 1938. NRRL strain 427.  
 10836 A.A. Prince, strain AMC 26, Wright-Patterson Air Force Base. 1951. QMRDC strain 1223. Military specifications for fungus resistance tests.
- Aspergillus terreus Thom  
 1012 C. Thom, strain 144, USDA. 1946. NRRL strain 255.  
 10020 and 10029 NRRL, strains 1960 and 265. 1946. Production of itaconic acid. Arch. Biochem., 1945, 7, 167.  
 10070 (Aspergillus hortai) C. Thom, strain 166-5071.1, USDA. 1946. NRRL strain 274. From clinical otomycosis.  
 10690 QMRDC, strain 82-J. 1949. Military specifications for fungus resistance tests.
- Aspergillus terreus Thom var. aureus Thom and Raper  
 11877 T.W. Johnson, Meharry Med. Coll., Nashville, Tenn. 1953.
- Aspergillus terricola Marchal var. americana Marchal  
 10662 C. Thom, strain 4838, USDA. 1946. NRRL strain 424.
- Aspergillus unguis (Emile-Weil and Gaudin) Thom and Raper  
 10075 C. Thom, strain 5076.1, USDA. 1946. NRRL strain 216.  
 12063 A. Chaves-Batista, strain 264, Univ. of Recife, Brazil. 1955.
- Aspergillus usamii Sakaguchi et al.  
 11364 K. Sakaguchi, strain R-0635, Univ. of Tokyo. 1952.
- Aspergillus ustus (Bainier) Thom and Church  
 1033 C. Thom, strain 4658.245, USDA. 1938.  
 1041 C. Thom, strain 3556, USDA. 1938. NRRL strain 275.  
 10032 W.C. Tobie, Kurung strain, American Cyanamid Co., Greenwich, Conn. 1946.  
 10760 NRRL, strain 2274. 1950. QMRDC strain 891, also strain J-272. Military specifications for fungus resistance tests.
- Aspergillus varicolor (Berkeley and Broome) Thom and Raper  
 10667 C. Thom, strain 5602.3, USDA. 1946. NRRL strain 212.
- Aspergillus varicolor var. major Chaves-Batista and Maia  
 12069 A. Chaves-Batista, strain 256, Univ. of Recife, Brazil. 1955.

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- Aspergillus versicolor (Vuillemin) Tiraboschi  
 9577 NRRL, strain 238. 1944.  
 10072 C. Thom, strain 135-3512, USDA. 1946. NRRL strain 226.  
 11730 QMRDC, strain 432. 1954. MIT strain 1c.
- Aspergillus violaceo-fuscus Gasperini  
 1042 C. Thom, strain 3522.30, USDA. 1938. NRRL strain 360.
- Aspergillus wentii Wehmer  
 1023\* C. Thom, strain 116, USDA. 1938. NRRL strain 375; CMI 17295.  
 10551 CBS. 1949. Mosseray's albino strain.  
 10552 (var. minimus Nakazawa et al.) CBS. 1949.  
 10583, 10584 and 10587 CMI, strains 16035, 16039 and 23010. 1949.  
 10589, 10590 and 10591 CMI, strains 23013, 23012 and 23014. 1949.
- Aspergillus sp.  
 12669 P.F. Klens, strain 611, Nuodex Products, Elizabeth, N.J. 1956. For testing mold proofing.
- Asporomyces uvae: See *Candida pulcherrima*
- Auricularia auricula-judae (Fries) Schroeter  
 11991 K. Sato, strain 5949, IFO. 1954.
- Basidiobolus meristosporus Drechsler  
 12243\* C. Drechsler, USDA. 1955. J. Washington Acad. Sci., 1955, 45, 50.
- Basidiobolus ranarum Eidam  
 11230 Frances F. Lombard, USDA. 1952. CBS.
- Beauveria bassiana (Balsamo) Vuillemin  
 9835 J.A. Stevenson, USDA. 1945. W.D. Wylie, U.S. Sugar Corp., Fla. From larva of sugarcane stalk borer.
- Beauveria densa (Link) Picard  
 9452 CBS. 1948.
- Beauveria effusa (Beauverie) Vuillemin  
 9453 CBS. 1948.
- Beauveria stephanoderis (Bally) Petch  
 9454 CBS. 1948.
- Blakeslea trispora Thaxter  
 11517(+) and 11518(-) NRRL, strains 1348 and 1718. 1953.
- Blastomyces brasiliensis (Splendore) Conant and Howell  
 10237 (*Paracoccidioides brasiliensis*) Margaret Upton, St. Luke's Hospital, New York, N.Y. 1947.  
 11888 C.W. Emmons, strain 6028, NIH. 1954. F. de Almeida, strain 966, Brazil.  
 11889 C.W. Emmons, strain 6040, NIH. 1954. J.E. Mackinnon, strain 630, IHM.
- Blastomyces dermatitidis Gilchrist and Stokes  
 4292 (*Blastomycoides tulanensis*) A. Castellani, Tulane Univ. 1928.  
 7967 J.S. D'Antoni, strain 114, Tulane Univ. 1941.  
 10225 C.W. Emmons, strain 6021, NIH. 1947.
- Blastomyces spp.  
 4248 E.S. Sanderson, strain 797, Univ. of Virginia. 1927. From pus in systemic blastomycosis.

## FUNGI AND YEASTS

### Blastomyces spp. (Continued)

- 4371 M.S. Nichols, strain 32131, Wisconsin State Lab. Hygiene.  
1925. From bone abscess.

### Boletus bicolor Peck

- 11935 W.F. Jeffers, Univ. of Maryland. 1954. J.G. Palmer,  
George Washington Univ.

### Botryodiplodia theobromae Patouillard

- 11318 CBS. 1952.

### Botryosphaeria berengeriana de Notaris

- 12557 CBS. 1952.

### Botryosphaeria ribis Grossenbacher and Duggar

- 11232 Frances F. Lombard, USDA. 1952. From Salix.

### Botryosphaeria ribis var. chromogena Shear et al.

- 11233 Frances F. Lombard, strain 71525, USDA. From chestnut.

### Botryosporium pulchrum Corda

- 12253 L.W. Durrell, Colorado A. and M. Coll. 1955.

### Botryotinia globosa Buchwald

- 11858 (Botrytis globosa) CBS. 1954. F. Buchwald strain 734.

### Botrytis allii Munn

- 9435 P.W. Brian, strain 38, Butterwick Research Lab., England.  
1947. Ann. Appl. Biol., 1945, 32, 214. Assay of fungistatic  
antibiotics.

### Botrytis cinerea Persoon ex Fries

- 7020 H.S. Fawcett, strain SA 801, Univ. of California, Riverside.  
1938. From avocado.  
11542 F.A. Weiss, ATCC. 1953. From azalea flowers.  
12481 B.M. Duggar, strain N51, American Cyanamid Co., Stamford,  
Conn. 1956. Oxidation of steroids, U.S. Patent  
2,789,940.

### Botrytis elliptica (Berkeley) Cooke

- 11787 F. Beran, Bundesanst. Pflanzenschutz, Vienna. 1954.

### Botrytis fabae Sardinã

- 12304 K. Sato, strain 5894, IFO. 1955.

### Botrytis gladiolorum Timmermans (= Sclerotinia draytoni Buddin and Wakefield)

- 11255 R.A. Young, strain G-4-7, Oregon State College. 1952.

### Botrytis paeoniae Oudemans

- 12482 American Cyanamid Co., Stamford, Conn., strain Z 518.  
1956. Oxidation of steroids, U.S. Patent 2,789,940.

### Botrytis tulipae (Libert) Lind

- 11788 F. Beran, Bundesanst. Pflanzenschutz, Vienna. 1954.

### Brachysporium oryzae Ito and Ishiyama

- 11571 K. Sato, strain 5246, IFO. 1953.

### Brettanomyces anomalus Custers

- 10559\* NRRL, strain Y-1415. 1949. CBS.

### Brettanomyces bruxellensis Kufferath and van Laer

- 9775 P.R. Burkholder, strain 131, Yale Univ. 1945. Requires  
pyridoxine. J. Bact., 1944, 48, 385.  
10560\* NRRL, strain Y-1411. 1949. CBS.

### Brettanomyces bruxellensis var. non-membranaefaciens Custers

- 10561 NRRL, strain Y-1412. 1949. CBS.

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### Brettanomyces claussenii Custers

10562 NRRL, strain Y-1414. 1949. CBS.

### Brettanomyces lambicus Kufferath and van Laer

10563 NRRL, strain Y-1413. 1949. CBS.

### Brevilegnia linearis Coker

10979 J.N. Couch, Univ. of North Carolina. 1951.

### Brevilegnia macrospora van Eek

11270 CBS. 1952.

### Byssoschlamys fulva Olliver and Smith

10099 C. Thom, strain 5367.6a, USDA. 1946. G. Smith, London Sch. Hyg. and Trop. Med. NRRL strain 1125.

### Byssoschlamys nivea Westling

12550 (*Arachniotus trisporus*) I.M. Lamb, Harvard Univ. 1956.  
Cf. R.K. Benjamin, El Aliso, 1956, 3, 301.

### Cadophora americana: See *Phialophora verrucosa*

### Caldariomyces fumago Woronichin

11925 (*Fumago vagans*) G. Smith, strain x 13, London Sch. Hyg. and Trop. Med. 1954. CBS.

### Calonectria graminicola (Berkeley and Broome) Wollenweber

11346 (*Fusarium nivale*) CBS. 1952.

### Calonectria rigidiuscula (Berkeley and Broome) Saccardo

12258 (*Fusarium decemcellulare*) L.W. Durrell, Colorado A. and M. Coll., Fort Collins. 1955.

### Candida albicans (Robin) Berkhout

752 (*Monilia pinoyi*) A. Castellani, Tulane Univ. 1926.

753 (*Monilia metalondinensis*) A. Castellani. 1926.

2091 (*Endomyces albicans*) R. Chodat, strain 132, Univ. of Geneva, Switzerland. 1928.

10231 C.W. Emmons, strain 3147, NIH. 1947. From clinical bronchomycosis.

10259 and 10261 A.E. de Arêa Leão, strains 2024 and 2023, IOC. 1947. J.E. Mackinnon, strains 806 (phase M) and 582 (phase S), IHM.

11651 G.H. Scherr, strain 171D, Creighton Univ., Omaha, Nebr. 1953. Moniliasis of mice.

### Candida brumptii Langeron and Guerra

10564 NRRL, strain Y-311. 1951. CBS.

### Candida catenulata Diddens and Lodder

10565\* NRRL, strain Y-1508. 1953. CBS.

### Candida curvata (Diddens and Lodder) Lodder and Kreger-van Rij

10567\* (*C. heveanensis* var. *curvata*) NRRL, strain Y-1511. 1952. CBS.

### Candida flareri (Ciferri and Redaelli) Langeron and Guerra

9375 A.E. de Arêa Leão, strain 2028, IOC. 1947. NRRL strain Y-1476.

10539 NRRL, strain Y-245. 1948. Production of riboflavin.

### Candida guilliermondii (A. Castellani) Langeron and Guerra

6260 (*Monilia guilliermondii*) A. Castellani, Ross Inst., London. 1938. From bronchomycosis.



# FUNGI AND YEASTS

## Candida guilliermondii (Continued)

- 9058 P.R. Burkholder, strain 488, Yale Univ. 1943. Production of riboflavin. Science, 1945, 101, 180.  
9390 A.E. de Arêa Leão, strain 2029, IOC. 1947. J.E. Mackinnon, strain 642, IHM.

## Candida guilliermondii var. membranaefaciens Lodder and Kreger-van Rij

- 9337\* (Candida chalmersi auth., non Castellani) A.E. de Arêa Leão, strain 2026, IOC. 1947. J.E. Mackinnon, strain 813-C, IHM. E.M. Mrak. From figs.  
9766 (Candida chalmersi auth., non Castellani) P.R. Burkholder, strain 25, Yale Univ. 1945. E.M. Mrak.

## Candida heveanensis: See Cryptococcus laurentii

## Candida humicola (Daszewska) Diddens and Lodder

- 2502 NRRL, strain Y-167. 1949.  
9949 NRRL, strain Y-1266. 1946.  
10263 (Candida suaveolens) A.E. de Arêa Leão, strain 2032, IOC. J.E. Mackinnon, strain 752.

## Candida intermedia (Ciferri and Ashford) Langeron and Guerra

- 9442 CBS. 1947.  
12089 B.A. Bourne, U.S. Sugar Corp., Clewiston, Fla. Antibiotic to Physalospora tucumanensis. Phytopath., 1955, 45, 37.

## Candida krusei (Castellani) Berkhout

- 2159 F.W. Tanner, Univ. of Illinois. 1926. NRRL strain Y-105.  
6258\* A. Castellani, Ross Inst., London. 1938. From clinical bronchomycosis.

## Candida krusoides Castellani

- 7345 (Monilia krusoides) A. Castellani, Ross Inst., London. 1938.  
10755 NRRL, strain Y-1368. Univ. of Wisconsin strain 84, "Candida arborea" 197.  
10756 NRRL, strain Y-1366. Univ. of Wisconsin strain 82. "Candida arborea" 198.

## Candida lipolytica (Harrison) Diddens and Lodder

- 8661 and 8662 N.C. Laffer, Lederle Labs., Pearl River, N.Y. 1942. NRRL strains Y-1095 and Y-1094; Purdue Univ. 13 and 14. Lipolytic; production of yeast protein.  
9773 P.R. Burkholder, strain 251, Yale Univ. 1945.

## Candida macedoniensis (Castellani and Chalmers) Berkhout

- (= Saccharomyces marxianus Hansen)  
748 A. Castellani, Tulane Univ. 1926.  
4564 (var. macedoniensis) A. Castellani, Ross Inst., London. 1929.

## Candida melinii Diddens and Lodder

- 10568 NRRL, strain Y-1514. CBS.

## Candida mesenterica (Geiger) Diddens and Lodder

- 10569 NRRL, strain Y-1494. CBS.

## Candida monosa (Kluyver) Diddens and Lodder

- 2146 NRRL, strain Y-97. 1941.  
9330 NRRL, strain Y-1495. 1947. CBS.

## Candida mycoderma (Reese) Lodder and Kreger-van Rij: See also Pichia membranaefaciens

- 9888\* (Mycoderma vini) NRRL, strain Y-94. 1945.

## FUNGI AND YEASTS

### Candida mycoderma (Continued)

10641 (*Mycoderma cerevisiae*) NRRL, strain Y-941. 1951.

10642 (*Mycoderma lafarrii*) NRRL, strain Y-936. 1953.

### Candida parapsilosis (Ashford) Langeron and Talice

4670 (*Blastodendron intestinale* var. *epidermicum*) R. Ciferri, Dominican Republic. 1931.

7330, 7333 and 7336 L. Black, strains 24, 31 and 34, Univ. of Maryland. 1938.

10265 A.E. de Arêa Leão, strain 2035, IOC. 1947. J.E. Mackinnon, strain 607, IHM.

### Candida pelliculosa Redaelli (= *Hansenula javanica*)

2149 F.W. Tanner, Univ. of Illinois. 1931. CBS. NRRL strain Y-98.

10262 A.E. de Arêa Leão, strain 2031, IOC. 1947. J.E. Mackinnon, strain 641, IHM.

### Candida pseudotropicalis (Castellani) Basgal (= *Saccharomyces fragilis*)

2512 (*Torula cremoris*) F.W. Tanner, Univ. of Illinois. 1928.

4135\* (*Monilia pseudotropicalis*) A. Castellani, Tulane Univ. 1927. From clinical bronchomycosis.

9767 P.R. Burkholder, strain 26, Yale Univ. 1945. Requires biotin, niacin, pantothenic acid, thiamine. J. Bact., 1944, 48, 555.

Also 19 strains contributed by N.C. Laffer, Lederle Lab., Pearl River, N.Y., isolated mostly from dairy products and some from human sources; used for production of "food yeast."

### Candida pseudotropicalis var. lactosa (Harrison) Diddens and Lodder

2540 F.W. Tanner, Univ. of Illinois. 1926. NRRL strain Y-196.

4922\* A.J. Kluyver, Delft. 1934.

7014 F.S. Orcutt, Virginia Polytechnic Inst., Blacksburg. 1938.

8648 N.C. Laffer, strain 149, Lederle Lab. 1942. NRRL strain Y-1203.

### Candida pulcherrima (Lindner) Windisch

7696 and 7697 (*Asporomyces uvae*) E.M. Mrak, strains 90 B 3R and 96 B 3W, Univ. of California, Davis. 1940.

9889 NRRL, strain Y-987. 1945.

### Candida reukaufii (Grüss) Diddens and Lodder

10570 NRRL, strain Y-1348. 1956.

### Candida rugosa (Anderson) Diddens and Lodder

10571\* NRRL, strain Y-1496. 1954. CBS.

### Candida scottii Diddens and Lodder

10572 NRRL, strain Y-1497. CBS.

### Candida stellatoidea (Jones and Martin) Langeron and Guerra

11006 N.F. Conant, Duke Univ. 1951.

### Candida tenuis Diddens and Lodder

10573 NRRL, strain Y-1498. CBS.

### Candida tropicalis (Castellani) Berkhout

750\* A. Castellani, Tulane Univ. 1926. From clinical bronchomycosis.

1369 Margaret B. Church, USDA. 1928. Ferments pentoses; used for production of "food yeast" from sulfite liquor and wood sugar.

## FUNGI AND YEASTS

### Candida tropicalis (Continued)

- 9968 (*Monilia murmanica*) From USSR. 1946. Used in production of "food yeast."

### Candida utilis (Henneberg) Lodder and Kreger-van Rij

- 8205 (*Torulopsis utilis*) NRRL, strain Y-660. 1941. Seagram and Sons, Inc., strain 35.  
8206 NRRL, strain Y-793. 1941. CBS.  
9226 R. St. John-Brooks, NCTC. 1943. From Jamaica; used in production of food yeast.  
9256 (*Torulopsis utilis* var. *major*) NRRL, strain Y-1084. 1943.  
9950 NRRL, strain Y-900. 1946. Production of yeast protein from potato starch washings. J. Agric. and Food Chem., 1954, 2, 70.

### Candida zeylanoides (Castellani) Langeron and Guerra

- 4933 P. Redaelli and R. Ciferri, Univ. Catania, Italy. 1934.  
7351\* (*Cryptococcus macroglossae*) A. Castellani, Ross Inst., London. 1938.  
10674 (*Torulopsis uvae*) NRRL, strain Y-1403. 1953.

### Cenococcum graniforme (Sowerby) Ferdinand and Winge

- 12622 CBS, strain 110. 1956. Denmark  
12746 CBS, strain 116. 1957. Sweden.

### Cephalosascus fragans Hanawa

- 12091 (*Ascochybe grovesii*) Doreen E. Wells, strain DAOM 33766, Science Service, Ottawa, Canada. 1954.

### Cephalosporium acremonium Corda

- 10141 J.A. Stevenson, strain 42-765 A, USDA. 1946.

### Cephalosporium alvaradi Crandall

- 11134\* Frances F. Lombard, strain ES-201, USDA. 1952. From mal-de-macanna of coffee.

### Cephalosporium apii M.A. Smith and Ramsey

- 10837\* J.A. Stevenson, USDA. 1951. M.A. Smith

### Cephalosporium calophylli Crandall

- 11135\* Frances F. Lombard, strain ES-134, USDA. 1952. From wilt disease of barillo.

### Cephalosporium diospyri Crandall

- 9066 Frances F. Lombard, strain 71678, USDA. 1951. From wilt of persimmon. Mycologia, 1945, 37, 495.

### Cephalosporium gregatum Allington and Chamberlain

- 11073\* D.W. Chamberlain, USDA, Urbana, Ill. 1951. From soybean dieback.

### Cephalosporium kiliense (Grütz) Hartman

- 4301 T. Benedek, Leipzig. From soft ulcer (human). Arch. fl. Dermatol. u. Syphil., 1928, 154, 166.

### Cephalosporium potronii (Vuillemin) Oomen

- 12338 CBS. 1955.

### Cephalosporium pullulans Emmons

- 12285\* C.W. Emmons, strain A 350, NIH. 1955. R.L. Zaayer, Veterans Hospital, Omaha, Nebr. From clinical pyelonephritis.

### Cephalosporium Recifei Arêa Leão and Lobo

- 9940 C.W. Emmons, strain 7307, NIH. 1945. From clinical maduramycosis, Brazil.

## FUNGI AND YEASTS

Cephalosporium endosphenatum: See Emericellopsis salmonymata

Cephalosporium spinosum Negróni

- 9471\* A.E. de Arêa Leão, strain 1720, IOC. 1947. From onychomycosis. Rev. Soc. Arg. Biol., 1933, 9, 10.

Cephalosporium sp.

- 11550 CMI, strain 49137. 1953. N.G. Heatley, Oxford Univ.

Produces cephalosporin.

Cephalothecium roseum Corda: See Trichothecium

Ceratocystis coerulescens (Münch) Bakshi

- 11066 (Endoconidiophora virescens) G.H. Hepting, strain 94250. USDA, Asheville, N.C. 1951.

- 12859 R.N. Campbell, strain 3, Univ. of Minnesota. 1957.

Ceratocystis fagacearum (Bretz) Hunt

- 11090 (Endoconidiophora fagacearum) A.J. Riker, Univ. of Wisconsin. 1951.

Ceratocystis fimbriata Ellis and Halsted

- 10804 (Ceratostomella fimbriata) J.S. Cooley, strain 2356, USDA. 1950. Thiamine assay, Mycologia, 1947, 39, 699.

Ceratocystis ips (Rumbold) Moreau

- 11091 Frances F. Lombard, strain 745, USDA. 1951.

- 12860 R.N. Campbell, strain 15, Univ. of Minnesota. 1957.

Ceratocystis major (van Beyma) Moreau

- 11932 W.F. Jeffers, Univ. of Maryland. 1954. CBS.

Ceratocystis minor (Hedgcock) Hunt

- 11065 (Ceratostomella pini) Frances F. Lombard, strain 62072, USDA. 1951.

Ceratocystis moniliformis (Hedgcock) Moreau

- 12861 R.N. Campbell, strain 35, Univ. of Minnesota. 1957.

Ceratocystis paradoxa (Dade) Moreau

- 11148 (Ceratostomella paradoxa) Frances F. Lombard, strain 6608, USDA. 1952. C.F. Andrus.

Ceratocystis piceae (Münch) Bakshi

- 12862 R.N. Campbell, strain 40, Univ. of Minnesota. 1957.

Ceratocystis pilifera (Fries) Moreau

- 8713 R.W. Davidson, strain 608-E, USDA. 1942.

- 12863 R.N. Campbell, strain 18, Univ. of Minnesota. 1957.

Ceratocystis pluriannulata (Hedgcock) Moreau

- 8714 R.W. Davidson, strain 731, USDA. 1942.

- 12864 R.N. Campbell, strain 36, Univ. of Minnesota. 1957.

Ceratocystis ulmi (Buisman) Moreau

- 9350 R.W. Davidson, USDA. 1947.

Ceratocystis varispora (Davidson) Moreau

- 12866 R.N. Campbell, strain I-4, Univ. of Minnesota. 1957.

Cercospora angolensis Carvalho and Mendes

- 11669\* T. Carvalho and O. Mendes, Rep. Tecnica Agric., Angola. Bol. Soc. Broteriana, 1953, 27, 201.

Cercospora apii Fresenius

- 12246 R.S. Cox, Univ. of Florida. 1955.

Cercospora beticola Saccardo

- 12824 and 12825 C. Chupp, Cornell Univ. 1957.

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## Cercospora canescens Ellis and Martin

11919 and 11920 E.S. Luttrell, strains 985-3 and 985-4, Georgia Agric. Expt. Sta. 1954.

## Cercospora hayi Calpouzos

12234\* Lucas Calpouzos, Mayaguez, Puerto Rico. 1955.

## Cercospora musae Zimmermann (= Mycosphaerella musicola Leach)

10688 CBS. 1949.

12565 Lucas Calpouzos, Mayaguez, Puerto Rico. 1956.

## Cercosporella herpotrichoides Fron

12083 R.A. Shoemaker, strain 38, Cornell Univ. 1955.

## Chaetomium aterrimum Ellis and Everhart

10025 P.B. Marsh, strain 1043.8, USDA. 1946. Mycologia, 1945, 37, 138.

## Chaetomium atrobrunneum Ames

11196\* L.M. Ames, strain J-1041-(3-J3), ERDC. 1952. Mycologia, 1949, 41, 637.

## Chaetomium aureum Chivers

10050 P.B. Marsh, strain 1043.9, USDA. 1946.

## Chaetomium bostrychodes Zopf

10019 P.B. Marsh, strain 1045.1, USDA. 1946.

## Chaetomium cancroideum Tschudy

11197 L.M. Ames, strain 1044.4, ERDC. 1952.

## Chaetomium causiaiformis Ames

11198\* L.M. Ames, strain J-1334, ERDC. 1952. Mycologia, 1949, 41, 637.

## Chaetomium cochliodes Palliser

10195 S.A. Waksman, strain 58, Rutgers Univ. 1946.

## Chaetomium contortum Peck

11199 L.M. Ames, ERDC. 1952.

## Chaetomium convolutum Chivers

11200 L.M. Ames, strain 1044.0, ERDC. 1952.

## Chaetomium cristatum Ames

11201\* L.M. Ames, ERDC. 1952. Mycologia, 1949, 41, 637.

## Chaetomium cupreum Ames

11202\* L.M. Ames, ERDC. 1952. Mycologia, 1949, 41, 637.

## Chaetomium dolichotrichum Ames

11203\* L.M. Ames, strain 1044.7, ERDC. 1952. Mycologia, 1945, 37, 138.

## Chaetomium elatum Kunze and Schmidt ex Fries

10024 P.B. Marsh, strain 1043.4, USDA. 1946.

## Chaetomium erectum Skolko and Groves

11204 L.M. Ames, ERDC. 1952.

## Chaetomium fibripilium Ames

11205\* L.M. Ames, ERDC. 1952.

## Chaetomium funicola Cooke

10006 P.B. Marsh, strain 1043.1, USDA.

## Chaetomium gangligerum Ames

11206\* L.M. Ames, ERDC. 1952. Mycologia, 1949, 41, 637.

## Chaetomium globosum Kunze ex Fries

6205 C. Thom, strain 1042.4, USDA. 1937.



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## Chaetomium indicum Corda

11207 L.M. Ames, ERDC. 1952.

## Chaetomium microcephalum Ames

11208\* L.M. Ames, strain 1045.0, ERDC. 1952. Mycologia, 1945, 37, 138.

## Chaetomium mollipilium Ames

11209\* L.M. Ames, ERDC. 1952.

## Chaetomium murorum Corda

11210 L.M. Ames, ERDC. 1952.

## Chaetomium nigricolor Ames

11211\* L.M. Ames, ERDC. 1952.

## Chaetomium ochraceum Tschudy

11212 L.M. Ames, strain 1044.5, ERDC. 1952.

## Chaetomium pachypodioides Ames

11213\* L.M. Ames, strain 1044.3, ERDC. 1952. Mycologia, 1945, 37, 138.

## Chaetomium reflexum Skolko and Groves

11214 L.M. Ames, ERDC. 1952.

## Chaetomium spirale Zopf

11215 L.M. Ames, ERDC. 1952.

## Chaetomium succineum Ames

11216\* L.M. Ames, ERDC. 1952. Mycologia, 1949, 41, 637.

## Chaetomium tetrasporum Hughes

11421\* CML, strain 5639. 1953.

## Chaetomium turgidopilosum Ames

11217\* L.M. Ames, strain J-730, ERDC. 1952. Mycologia, 1949, 41, 637.

## Chaetomium velutinum Ames

11218\* L.M. Ames, strain J-359, ERDC. 1952. Mycologia, 1949, 41, 637.

## Chaetostylum fresenii van Tieghem and LeMonnier

11881 CBS. 1954.

## Chalara mycoderma Bonorden

11383 K. Sato, strain 4841, IFO. 1952.

## Chalara quercina: See Ceratocystis fagacearum

## Chalaropsis thielavioides Peyronel

11234 Frances F. Lombard, strain E-1, USDA. 1952.

## Choanephora cucurbitarum (Berkeley and Ravenel) Thaxter

10909 W.F. Jeffers, Univ. of Maryland. 1951. From squash blossom end rot.

12997(+) and 12998(-) NRRL, strains A-6097 and A-6098. 1957. Production of beta-carotene.

## Choanephora infundibulifera (Currey) Saccardo

12305(+) and 12306(-) K. Sato, strains 5987 and 5988. IFO. 1955.

## Circinella linderi Hesseltine and Fennell

11744\* NRRL, strain 2342. 1954. Mycologia, 1955, 47, 205.

## Circinella minor Lendner

9026 D.H. Linder, strain 107, Harvard Univ. 1943.

## Circinella mucoroides Saito

11620 (C. chinensis) K. Sato, strain 4453, IFO. 1953.

11907 K. Sato, strain 4455, IFO. 1954.

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### Circinella muscae (Sorokine) Berlese and de Toni

9023 (Circinella sydowi) D.H. Linder, strain 111, Harvard Univ. 1943. Mycologia, 1955, 47, 201.

9025 (Circinella spinosa) D.H. Linder, strain 109, Harvard Univ. 1943.

11549 (Circinella nigra) NRRL, strain X-45. 1953.

### Circinella umbellata van Tieghem and Le Monnier

8774(+) V.M. Cutter, Jr., strain 99, Cornell Univ. 1942.

### Cladosporium avellaneum de Vries f. albidum de Vries

11272\* CBS. 1952. G.A. de Vries. Thesis, Univ. Utrecht. 1952.

### Cladosporium avellaneum de Vries f. avellaneum de Vries

11273\* CBS. 1952.

### Cladosporium avellaneum de Vries f. resinae (Lindau) de Vries

11274\* (C. avellaneum f. viride) CBS. 1952.

11841 and 11873 (Helminthosporium resinae) D.H. Marsden, strains Christensen and Enola, Eastern States Farmers' Exchange, Mass. 1954. Mycologia, 1954, 46, 161.

### Cladosporium carpophilum Thuemen

12062 L. Beraha, USDA. 1955. E.E. Wilson, Univ. of California. From almond.

12117 CBS, strain Jones. 1955. D.H. Palmiter, Univ. of Wisconsin. From peach.

11218 CBS, strain Heim. 1955. From peach.

### Cladosporium cladosporioides (Fresenius) de Vries

11275 and 11276 CBS, strains Bennett and Hassall. 1952.

11277 and 11278 CBS, strains Tengwall and Raistrick. 1952.

### Cladosporium cladosporioides (Fresenius) de Vries f. sp. pisicola (Snyder) de Vries

11284\* CBS, strain Californian. 1952. W.C. Snyder, Univ. of California. From pea.

### Cladosporium cucumerinum Ellis and Arthur

11279 CBS, strain Delfgauw. 1952.

### Cladosporium elatum (Harz) Nannfeldt

11280 CBS, strain Melin 389:14. 1952.

### Cladosporium fulvum Cooke

10391 NRRL, strain 1671. 1948.

### Cladosporium herbarum Link ex Fries

6506 J.A. Stevenson, USDA. 1938. CBS, strain 5362.

11281, 11282 and 11283 CBS, strains Feekes 2 (apple), 3 (Typha), and 4 (Loos). 1952.

### Cladosporium macrocarpum Preuss

11285, 11286 and 11287 CBS, strains 1 (Nicot-Toulouse 684), 2 (Cantharellus), and 3 (Heald)—the latter an ascospore culture from Mycosphaerella tulasnei. 1952.

### Cladosporium mansonii Castellani

762 A. Castellani, Ross Inst., London. 1954.

### Cladosporium sphaerospermum Penzig

11288 and 11289 CBS, strains 1 (Telher) and 2 (Zappey). 1952. From human nails.

11290 to 11293 CBS, strains 3 (Engelhardt), 4 (Jochems), 5 (249-c) and 6 (Janke). 1952.

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- Cladosporium trichoides Emmons  
10955 C. W. Emmons, NIH. Amer. J. Clinical Path., 1952, 22, 535.
- Cladosporium variabile (Cooke) de Vries  
11294 and 11295 CBS, strains 1 and 2. 1952. From spinach.
- Claviceps paspali Stevens and Hall  
9606 C. L. Lefebvre, USDA. 1944.
- Claviceps purpurea (Fries) Tulasne  
9605 C. L. Lefebvre, USDA. 1944.
- Clitocybe illudens Schweinitz  
11719 and 11720 J. W. Hastings, strains 10018 and 22424, Northwestern Univ. 1954.
- Clitocybe tabescens (Scopoli) Bresadola  
11780 Frances F. Lombard, USDA. 1954.
- Coccidioides immitis Rixford and Gilchrist  
7366 (*Glenospora metaeuropea*) A. Castellani, Inst. Med. Trop., Lisbon. 1954.  
9180 and 9181 C. W. Emmons, strains M249 and 6210, NIH. 1943.  
10228 C. W. Emmons, strain 6206, NIH. 1947.  
11831 F. J. Herrero, Duke Univ. 1954.
- Coccomyces hiemalis Higgins  
12113 J. B. Routien, Chas. Pfizer and Co., Inc. Brooklyn, N. Y. 1955. CBS.
- Cochliobolus miyabeanus (Ito and Kuribayashi) Drechsler  
11608 (*Ophiobolus miyabeanus*) K. Sato, strain 5277, IFO. 1953.
- Coemansia brasiliensis Thaxter ex Linder  
12438 NRRL, strain 1566. 1956.
- Coemansia erecta Bainier  
12439 NRRL, strain 2362. 1956.
- Coemansia guatemalensis Thaxter ex Linder  
12440 NRRL, strain 1565. 1956.
- Coemansia pectinata (Coemans) Bainier  
12441 NRRL, strain 1564. 1956.
- Colletotrichum destructivum O'Gara  
11869 Lois H. Tiffany, Iowa State College. 1954. From alfalfa.
- Colletotrichum gossypii Southworth  
12788 Katharina Bollenbacher, strain 612 Mn, Univ. of Arkansas, 1957. From seedling blight of cotton.  
12937 C. H. Arndt, strain 57-3, Clemson College, South Carolina. 1957. Reisolation from experimentally infected cotton seedling.
- Colletotrichum graminicola (Cesati) Wilson  
11870 Lois H. Tiffany, Iowa State College. 1954. From alfalfa.
- Colletotrichum lagenarium (Passerini) Ellis and Halsted (= *Glomerella lagenaria* Watanabe and Tamura)  
10917 W. F. Jeffers, Univ. of Maryland. 1951. From acorn squash.  
11326 J. G. Atkins, Louisiana State Univ. 1952. From cucumber.
- Colletotrichum lindemuthianum (Saccardo and Magnus) Scribner  
11224, 11225 and 11226 A. L. Andersen, strains alpha, beta and gamma, Michigan State Univ. 1952.

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### Colletotrichum orchidearum Allescher

11937 W.F. Jeffers, Univ. of Maryland. 1954.

### Colletotrichum phomoides (Saccardo) Chester (= *Glomerella phomoides* Swank)

12521 R.W. Thoma, strain S.C. 2145, Squibb Inst. Med. Res., New Brunswick, N.J. 1956.

12624 C.E. Cox, Univ. of Maryland. 1956.

### Colletotrichum pisi Patouillard

12520 R.W. Thoma, Squibb Inst. Med. Res., New Brunswick, N.J. 1956.

### Colletotrichum tabacum Böning

11995 A. Rothwell, Bot. and Plant Path. Branch, S. Rhodesia. 1955.

### Colletotrichum trifolii Bain and Essary

9448 Helen Sherwin, strain 2941, USDA. 1948. From red clover.

12126 J.R. Leclercq, Coulommiers, France. 1955. From alfalfa.

### Colletotrichum truncatum (Schweinitz) Andrus and Moore

11650 H.D. Wells, USDA, Tifton, Georgia. From Lotus.

### Colletotrichum sp.

10921 W.F. Jeffers, Univ. of Maryland. From tobacco anthracnose.

### Collybia velutipes (Curtis) Quélet

12053 W.F. Jeffers, Univ. of Maryland. 1955. Strain Pfizer 122.

### Conidiobolus adiaeretus Drechsler

12589\* C. Drechsler, USDA. 1956. J. Wash. Acad. Sci., 1953, 43, 42.

### Conidiobolus chlamydosporus Drechsler

12242\* C. Drechsler, USDA. 1955. Amer. J. Bot., 1955, 42, 799.

### Conidiobolus denaeosporus Drechsler

12243\* C. Drechsler, USDA. 1957. J. Wash. Acad. Sci., 1957, 47, 309.

### Conidiobolus globuliferus Drechsler

12584\* C. Drechsler, USDA. 1956. J. Wash. Acad. Sci., 1956, 43, 783.

### Conidiobolus heterosporus Drechsler

12941\* C. Drechsler, USDA. 1957. Amer. J. Bot., 1953, 40, 107.

### Conidiobolus lamprauges Drechsler

12592\* C. Drechsler, USDA. 1956. J. Wash. Acad. Sci., 1953, 43, 35.

### Conidiobolus megalotocus Drechsler

12914\* C. Drechsler, USDA. 1957. Amer. J. Bot., 1956, 43, 778.

### Conidiobolus nanodes Drechsler

12585\* C. Drechsler, USDA. 1956. Amer. J. Bot., 1955, 42, 439.

### Conidiobolus osmodes Drechsler

12590\* C. Drechsler, USDA. 1956. Amer. J. Bot., 1954, 41, 571.

### Conidiobolus paulus Drechsler

12942\* C. Drechsler, USDA. 1957. Bull. Torrey Bot. Club, 1957, 84, 275.

### Conidiobolus polytocus Drechsler

12244\* C. Drechsler, USDA. 1955. Amer. J. Bot., 1955, 42, 793.

### Conidiobolus pumilus Drechsler

12591\* C. Drechsler, USDA. 1956. J. Wash. Acad. Sci., 1955, 45, 114.

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### Conidiobolus rhyosporus Drechsler

12555 C. Drechsler, USDA. 1956. Amer. J. Bot., 1954, 41, 567.

### Conidiobolus rugosus Drechsler

12586\* C. Drechsler, USDA. 1956. Amer. J. Bot., 1955, 42, 437.

### Conidiobolus thromboides Drechsler

12587\* C. Drechsler, USDA. 1956. J. Wash. Acad. Sci., 1953, 43, 38.

### Conidiobolus undulatus Drechsler

12943\* C. Drechsler, USDA. 1957. Bull. Torrey Bot. Club, 1957, 84, 275.

### Conidiobolus villosus: See Delacroixia coronata

### Coniella diplodiella (Spegazzini) Petrak and Sydow

12684 (Coniothyrium diplodiella) CBS. 1956.

### Coniophora puteana (Fries) Karsten

9351 (Coniophora cerebella) R. W. Davidson, strain F.P. 94042-R, USDA. 1947.

12675 Frances F. Lombard, USDA. 1956. Strain Madison 515.

### Coniothyrium fuckelii Saccardo

11349 CBS. 1952.

### Coniothyrium hellebori Cooke and Massee

12522 R. W. Thoma, Squibb Inst. Med. Res., New Brunswick, N.J. 1956.

### Coprinus comatus Fries

12640 Frances F. Lombard, strain 94373-Sp, USDA. 1956.

### Corticium catonii Burgeff

11844 CBS. 1954.

### Corticium centrifugum (Léveillé) Bresadola

11098 K. Sato, strain 4476, IFO. 1954.

### Corticium conigenum

11931 W. F. Jeffers, Univ. of Maryland. 1954. Chas. Pfizer Co., strain 6621.

### Coryneum carpophilum (Léveillé) Jauch

12683 (Clasterosporium carpophilum) CBS. 1956.

### Creonectria rubicarpa (Cooke) Seaver

9551 E. S. Luttrell, strain 52, Georgia Agric. Expt. Sta. 1944.

### Cryptococcus albidus (Saito) Skinner

10666 NRRL, strain Y-1400. 1956. CBS.

### Cryptococcus diffluens (Zach) Lodder and Kreger-van Rij

10672 (Torulopsis rotundata) NRRL, strain Y-1402. 1948. CBS.

12307 K. Sato, strain 0612, IFO. 1955.

### Cryptococcus laurentii (Kufferath) Skinner

9981 NRRL, strain Y-199. 1946.

10566 NRRL, strain Y-1510. 1952. CBS.

10654 NRRL, strain Y-1582. 1956.

### Cryptococcus laurentii var. flavescens (Saito) Lodder and Kreger-van Rij

10668 NRRL, strain Y-1401. 1956. CBS.

11486\* NRRL, strain Y-1404. 1953. CBS.

### Cryptococcus luteolus (Saito) Skinner

10671 NRRL, strain Y-986. 1956. E. M. Mrak strain 32.

### Cryptococcus neoformans (Sanfelice) Vuillemin

2505 F. W. Tanner, Univ. of Illinois. 1929. NCTC strain 885.



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### Cryptococcus neoformans (Continued)

- 2526 F.W. Tanner, Univ. of Illinois. 1922. NCTC strain 1492.  
4189 (*Cryptococcus hominis*) CBS. 1927.  
4413 and 4414 E.F. Hirsch, strains 2016 and 2943, St. Luke's Hospital, Chicago. 1927.  
9506 O. Felsenfeld, Chicago Med. School. 1944.  
10226 C.W. Emmons, strain 3713, NIH. 1947. From clinical meningitis.  
11239 and 11240 C.W. Emmons, strains 3717 and 3718, NIH. 1952. From soil.  
11241 and 11242 C.W. Emmons, strains 3723 and 3724, NIH. 1952. From bovine mastitis.

### Cryptococcus terreus di Menna

- 11799\* Margaret E. di Menna, Univ. of Otago, New Zealand. From soil. J. Gen. Microbiol., 1954, 11, 195.

### Cryptosporella umbrina (Jenkins) Wehmyer

- 11271 CBS. 1952. Anna E. Jenkins, Cornell Univ. From brown canker on rose.

### Cunninghamella bainieri Naumov

- 6794b (-) and 6796b (-) A.F. Blakeslee, CIW. 1938.  
8987 and 9244 V.M. Cutter, Jr., strains 152 and 29, Cornell Univ. 1942.

### Cunninghamella bertholletiae Stadel

- 11064 (+) NRRL, strain 1378. 1951.

### Cunninghamella blakesleeana Lendner

- 8688a (+) and 8688b (-) NRRL, strains 1369 and 1368. 1942. Strain "a" is identical with H-334 Upjohn, used in oxidation of steroids. Appl. Microbiol., 1955, 3, 14.

### Cunninghamella echinulata (Matruchot) Thaxter

- 8984 and 9243 V.M. Cutter, Jr., strains 224 and 345, Cornell Univ. 1942.  
11585 (-) NRRL, strain 1387. 1953. A.F. Blakeslee strain C 886.

### Cunninghamella elegans Lendner

- 6795b (-) A.F. Blakeslee, CIW. 1938.  
7929, 9245 and 9246 V.M. Cutter, Jr., strains 29, 296 and 349, Cornell Univ. 1943.  
10028a (+) and 10028b (-) NRRL, strains 1392 and 1393. 1946. A. F. Blakeslee.

- 11064 (+) (*Cunninghamella bertholletiae*) NRRL, strain 1378. 1951.

### Cunninghamella verticillata Paine

- 8983, 8985 and 8986 V.M. Cutter, strains 225, 223 and 209, Cornell Univ. 1942.

### Curvularia brachyspora Boedijn

- 12330 QMRDC, strain 93b. 1955.

### Curvularia geniculata (Tracy and Earle) Boedijn

- 6671 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938. CBS.  
11153 CBS, strain B-R. 1951.

### Curvularia inaequalis (Shear) Boedijn

- 6478 J.A. Stevenson, strain 1314, USDA. 1938. C.L. Shear strain 51.

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- Curvularia intermedia Boedijn  
12231 QMRDC, strain 563. 1955.
- Curvularia lunata (Wakker) Boedijn  
12017 NRRL, strain 2380. 1955. Chas. Pfizer Co. strain used in steroid research.
- Curvularia maculans (Bancroft) Boedijn  
12342 QMRDC, strain 666, 1955.
- Curvularia pallescens Boedijn  
12018 NRRL, strain 2381. 1955. Chas. Pfizer Co. strain used in steroid research.
- Curvularia spicifera (Bainier) Boedijn  
12415 (*Helminthosporium spiciferum*) CMI, strain 61533. 1955. CBS.
- Curvularia trifolii (Kauffman) Boedijn f. sp. gladioli Parmelee and Luttrell  
11075 B.H. Marshall, Jr., strain 246, USDA. 1951. From gladiolus.
- Cylindrocarpum ianthothele Wollenweber (= *Nectria rubi* Osterwalder)  
12821 R.W. Thoma, strain S.C. 2797, Squibb Inst. Med. Res., New Brunswick, N.J. 1957.
- Cylindrocarpum olidum Wollenweber  
6679 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.
- Cylindrocarpum radiculicola Wollenweber  
11011 D. Perlman, strain SS 207-1, Squibb Inst. Med. Res., New Brunswick, N.J. 1951. Production of  $\Delta$ -testolactone from progesterone. U.S. Patent 2,744,120.  
11830 W.H. Wheeler, USDA. 1954. From gloxinia corms.
- Cylindrocladium scoparium Morgan  
11614 R.S. Cox, Univ. of Delaware. 1953. From crown canker on multiflora roses.
- Dactylium sp.  
11339 W.F. Jeffers, Univ. of Maryland. 1952. T.T. Ayers, strain 150.
- Daedalea confragosa Bolton ex Fries  
9402 J.W. Sinden, strain Overholts 24697-R, Pennsylvania State Coll. 1947.
- Daedalea quercina Linnaeus ex Fries  
9404 J.W. Sinden, strain Overholts 24780-S, Pennsylvania State Coll. 1947.
- Daedalea unicolor Fries  
9405 J.W. Sinden, strain Overholts 24781-R, Pennsylvania State Coll. 1947.
- Daedalea juniperina Murrill  
12420 Frances F. Lombard, strain 71540-R, USDA. 1956.
- Darlucula filum (Bivona-Bernardi) Castagne  
11100 CBS. 1951.
- Debaryomyces dispersus, *D. globosus*: See *Saccharomyces bisporus*
- Debaryomyces hansenii (Zopf) Lodder and Kreger-van Rij  
2357 (*Saccharomyces hansenii*) F.W. Tanner, Univ. of Illinois. NCTC strain 1681.

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### Debaryomyces hansenii (Continued)

- 9367 R. Ciferri, Univ. of Pavia, Italy. 1947. From tobacco fermentation.  
 10619 NRRL, strain Y-1448. 1949.  
 10622 (*Debaryomyces membranaefaciens*) NRRL, strain Y-1455. 1949. CBS.  
 10623 (*Debaryomyces tyrocola*) NRRL, strain Y-1458. 1953. CBS.  
 10996, 10997 and 10998 (*Debaryomyces tyrocola*) K. Kominami, strains 7061, 7062 and 7063, Nagao Inst., Japan. 1951.

### Debaryomyces kloeckeri Guilliermond and Péju

- 4143 (*Debaryomyces fabryi*) F.W. Weidman, Univ. of Pennsylvania. 1927.  
 4144 (*Debaryomyces gruetzii*) F.W. Weidman, Univ. of Pennsylvania. 1927.  
 10620 NRRL, strain Y-1449. 1949. CBS.  
 10994 and 10995 (*Debaryomyces sake*) K. Kominami, strains 7059 and 7060, Nagao Inst., Japan. 1951.

### Debaryomyces mandshuricus: See *Saccharomyces cerevisiae*

### Debaryomyces marama di Menna

- 11627\* Margaret E. di Menna, Univ. of Otago, New Zealand. 1953. J. Gen. Microbiol., 1954, 10, 65.

### Debaryomyces nicotianae Giovannozzi

- 9364 R. Ciferri, Univ. of Pavia, Italy. 1947. From tobacco fermentation.  
 9365 R. Ciferri, Univ. of Pavia. 1947. Received as var. minor.  
 9366 (*Debaryomyces marylandii*) R. Ciferri, Univ. of Pavia. 1947.

### Delacroixia coronata (Costantin) Saccardo and Sydow

- 10051 (*Entomophthora coronata*) Flora G. Pollack, USDA. 1946.  
 10941 (*Conidiobolus villosus*) W.F. Jeffers, Univ. of Maryland. 1951.

### Diaporthe oncostoma (Duby) Fuckel

- 11324 Frances F. Lombard, strain 71617, USDA. 1952. From Robinia canker.

### Diaporthe phaseolorum (Cooke and Ellis) Saccardo var. caulivora Athow and Caldwell

- 12047 and 12048 A.A. Hildebrand, Canada Dept. Agric., Harrow, Ontario. 1954. From soybean, isolates A (monoconidial) and B (ascigerous). Plant Dis. Reporter, 1954, 38, 640.

### Diaporthe phaseolorum var. sojae (Lehman) Wehmyer

- 12049 and 12050 A.A. Hildebrand, isolates C and D, Canada Dept. Agric. 1954.

### Dibotryon morbosum (Schweinitz) Theissen and Sydow

- 11350 CBS. 1952.

### Dictyostelium discoideum Raper

- 11755 K.B. Raper, Univ. of Wisconsin. 1954. With *Escherichia coli*.

### Dictyostelium polycephalum Raper

- 12548\* K.B. Raper, Univ. of Wisconsin. 1956. J. Gen. Microb. 1956, 14, 716. With *Aerobacter aerogenes* and *Dematium nigrum*

### Dictyostelium purpureum Olive

- 12295 K.B. Raper, strain 3645, Univ. of Wisconsin. 1955.

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- Didymella lycopersici Klebahn  
11847 CBS, strain Wollenweber. 1954.
- Diplocarpon rosae Wolf  
11373 W.F. Jeffers, strain 4-5, Univ. of Maryland. 1952.
- Diplodia cajani Raychauduri  
11848\* CBS. 1954. Raychauduri strain GC 275.
- Diplodia natalensis Evans (- *Physalospora rhodina* [Berkeley and Curtis]  
Cooke)  
9055 E. West, Univ. of Florida. 1943.
- Diplodia zeae (Schweinitz) L  veill    
10235 A.J. Ullstrup, USDA, Lafayette, Indiana. 1947.
- Diplodina persicae Horn and Hawthorne  
11893 M.A. Smith, USDA, Chicago. 1954. *Phytopath.*, 1954, 44, 134.
- Dipodascus uninucleatus Biggs  
7445\* E.M. Mrak, Univ. of California, Berkeley. 1939.
- Eidamia catenulata Horne and Williamson  
6475 J.A. Stevenson, USDA. 1938. A.S. Horne strain 1137.
- Eidamia viridescens Horne and Williamson  
6482 J.A. Stevenson, USDA. 1938. A.S. Horne strain 1358.
- Elsino   corni Jenkins and Bitancourt  
11189 Anna E. Jenkins, strain 705, USDA. 1951. *J. Wash. Acad. Sci.*, 1948, 38, 362.  
11319 Anna E. Jenkins, strain 708X, USDA. 1952.
- Elsino   diospyri Bitancourt and Jenkins  
11184 Anna E. Jenkins, strain 630-E, USDA. *Arq. Inst. Biol. S  o Paulo*, 1950, 20, 7.
- Elsino   fawcetti Jenkins  
11512 G.F. Weber, Univ. of Florida. 1953.  
11526 A.G. Plakidas, Louisiana State Univ. 1953.
- Elsino   heveae Bitancourt and Jenkins  
12570\* and 12571 Anna E. Jenkins, strains 942 F and 944 F, Univ. of S  o Paulo, Brazil. 1956.
- Emericellopsis salmosynnemata Grosklags and Swift  
11661 (*Cephalosporium salmosynnematum*) J.M. Roberts, strain 3590 A, Michigan State Dept. Health. 1953. Produces synnematin. U.S. Patent 2,638,018.
- Endoconidiophora: See *Ceratocystis*
- Endomyces decipiens (Tulasne) Reess  
10626 NRRL, strain Y-1480. 1949. CBS.  
10758 NRRL, strain Y-1878. 1950.
- Endomyces lactis: See *Geotrichum candidum*
- Endomyces magnusii Ludwig  
2105 R. Chodat, Univ. of Geneva, Switzerland. 1928. NRRL strain Y-836.
- Endomycopsis bisporus (Beck) Dekker  
10627\* NRRL, strain Y-1482. 1949. CBS.
- Endomycopsis capsularis (Schi  nning) Dekker  
2471 NRRL, strain Y-50. 1946.

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### Endomycopsis chodati Wickerham and Burton

- 6270 (Sporotrichum anglicum) A. Castellani, Ross Inst., London.  
1937.

### Endomycopsis fibuliger (Lindner) Dekker

- 2080 (Endomyces lindneri) F.W. Tanner, Univ. of Illinois. 1928.  
CBS. NRRL strain Y-3  
2082 F.W. Tanner. 1925. NRRL strain Y-25.  
2088 (Endomyces hordei) R. Chodat, strain 116, Univ. of Geneva,  
Switzerland. 1928. NRRL strain Y-76.  
2089 (Endomyces lindneri) R. Chodat, strain 117. 1928. NRRL  
strain Y-77.  
2090 R. Chodat, strain 118. 1928. NRRL strain Y-78.  
9947 NRRL, strain Y-1062. 1946. Production of amylase.

### Endomycopsis javanensis (Klöcker) Dekker

- 10628 NRRL, strain Y-1483. 1943. CBS.

### Endomycopsis selenospora (Nadson and Krassilnikov) Dekker

- 10629 NRRL, strain Y-1357. 1949. CBS.

### Endomycopsis vernalis: See Trichosporon pullulans

### Endothia parasitica (Murrill) P.J. and H.W. Anderson

- 9414 J.W. Sinden, strain Overholts 24786-R, Pennsylvania State  
Coll. 1947.

### Entomophthora coronata: See Delacroixia coronata

### Epicoccum purpurascens Ehrenberg ex Wallroth

- 10999 K. Kominami, strain 4160, Nagao Inst., Japan. 1951.

### Epidermophyton floccosum (Harz) Langeron and Milochevitch

- 9646 C.W. Emmons, strain 1282, NIH. 1944.  
10227 C.W. Emmons, strain 1209, NIH. 1947.

### Eremascus albus Eidam

- 11664 and 11665 E.K. Goldie-Smith, strains 702 and 704, Univ. of  
North Carolina. 1953. W.J. Dowson.

### Eremothecium ashbyii Guilliermond<sup>3</sup>

- 6747 CBS. 1945.

### Fabraea maculata Atkinson

- 11941 (Entomosporium maculatum) W.F. Jeffers, Univ. of  
Maryland. 1954.

### Fomes annosus (Fries) Cooke

- 9582 R.W. Davidson, strain 56499-S, USDA. 1945.  
11667 Frances F. Lombard, strain 58548-S, USDA. 1953.

### Fomes applanatus (Fries) Gillet

- 9400 J.W. Sinden, strain Overholts 24772-S, Pennsylvania State  
Coll. 1947.

### Fomes pini (Fries) Karsten

- 12240 Frances F. Lombard, strain Bud. 1428-B, USDA. 1955.

### Fomes pinicola (Fries) Cooke

- 9399 J.W. Sinden, strain Overholts 24719-S, Pennsylvania State  
Coll. 1947.

<sup>3</sup> Approval of the U.S. Dept. of Agriculture is prerequisite to sending  
this culture to certain states.



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### Fomes robustus Karsten

- 9401 J.W. Sinden, strain Overholts 24691-S, Pennsylvania State Coll. 1947.

### Fomes roseus (Albertini and Schweinitz) Cooke

- 11749 Frances F. Lombard, strain 17572, USDA. 1954. Canada Dept. Agric., Forest Path. Sect. Ottawa.

### Fomes subroseus (Weir) Overholts

- 11750 Frances F. Lombard, strain 17529, USDA. 1954. Canada Dept. Agric.

### Fusarium avenaceum (Fries) Saccardo

- 8150 and 8151 W.J. Robbins, strains M and N, New York Bot. Garden. 1941.

### Fusarium bulbigenum: See under F. oxysporum

### Fusarium caeruleum (Libert) Saccardo

- 11849 CBS, strain Wollenweber. 1954.

### Fusarium conglutinans: See F. oxysporum f. conglutinans

### Fusarium culmorum (W.G. Smith) Saccardo

- 12656 CMI, strain 35099. 1956. From soil, England.

### Fusarium decemcellulare: See Calonectria rigidiuscula

### Fusarium dimerum Penzig

- 11552 A. Niethammer, strain F 24, Stuttgart, Germany. 1953.

### Fusarium javanicum var. radicicola: See Hypomyces ipomoea

### Fusarium lateritium: See Gibberella baccata

### Fusarium lini: See F. oxysporum f. lini

### Fusarium lycopersici: See F. oxysporum f. lycopersici

### Fusarium moniliforme: See Gibberella fujikuroi

### Fusarium nivale: See Calonectria nivalis

### Fusarium orthoceras: See under F. oxysporum

### Fusarium niveum: See F. oxysporum f. niveum

### Fusarium oxysporum Schlechtendahl emend. Snyder and Hansen

- 659 F.D. Weidman, strain DR 1004, Univ. of Pennsylvania. 1926. R. J. Sabouraud.

- 4254 C.L. Kerrenberg, strain Berl, Hamburg, Germany. 1927.

- 7601 F.A. Weiss, strain 529, USDA. 1939. From potato wilt.

- 12581 F.A. Weiss, ATCC. 1956. From roots of turf grass.

### Fusarium oxysporum f. batatas (Wollenweber) Snyder and Hansen

- 10911 W.F. Jeffers, Univ. of Maryland. 1951. From sweet potato wilt.

- 11938 W.F. Jeffers. 1954. From sweet potato wilt.

### Fusarium oxysporum f. bulbigenum (Cooke and Massee) Snyder and Hansen

- 7618 F.A. Weiss, strain 693, USDA. H.W. Wollenweber.

### Fusarium oxysporum f. cepae (Hansawa) Snyder and Hansen

- 11711 (Fusarium zonatum) W.C. Snyder, strain 021, Univ. of California. 1953. From onion bulb rot.

- 11850 (F. oxysporum f. 7) CBS. 1954. L.H. Leonian. From onion.

### Fusarium oxysporum f. conglutinans (Wollenweber) Snyder and Hansen

- 9990 G.W. Irving, Jr., USDA. 1946. From cabbage wilt.

### Fusarium oxysporum f. cubense (E.F. Smith) Snyder and Hansen

- 11356 CBS. 1952. From banana wilt.

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- Fusarium oxysporum f. dianthi (Prillieux and Delacroix) Snyder and Hansen  
 11102 W.F. Jeffers, Univ. of Maryland. 1952. From carnation wilt.  
 11939 W.F. Jeffers. 1954. H.N. Hansen.
- Fusarium oxysporum f. gladioli (Massey) Snyder and Hansen  
 11137 W.F. Jeffers, Univ. of Maryland. 1952. B.H. Marshall, USDA. From gladiolus corm rot.  
 11851 CBS. 1954. L.M. Massey
- Fusarium oxysporum f. lini (Bolley) Snyder and Hansen  
 10959 and 10960 J.J. Christensen, strains 0 and 1, Univ. of Minnesota. 1951. From flax wilt.
- Fusarium oxysporum f. lycopersici (Brushi) Snyder and Hansen.  
 9849 G.W. Irving, Jr., strain Wellman R-5-6Q, USDA. 1944. From tomato wilt.
- Fusarium oxysporum f. melonis (Leach and Currence) Snyder and Hansen  
 12886 and 12887 J.H. Owen, strains California and Cornell, Univ. of Florida. 1957. From cantaloupe wilt.
- Fusarium oxysporum f. nicotianae (Johnson) Snyder and Hansen  
 10913 W.F. Jeffers, Univ. of Maryland. 1951. From tobacco wilt.
- Fusarium oxysporum f. niveum (E.F. Smith) Snyder and Hansen  
 12848 Nash Winstead, North Carolina State College, Raleigh. 1957. From watermelon wilt.
- Fusarium oxysporum f. perniciosum (Hepting) Snyder and Hansen  
 12282 W.F. Jeffers, Univ. of Maryland. 1955. From mimosa (Albizzia) wilt.
- Fusarium oxysporum f. pisi (Lindford) Snyder and Hansen  
 9991 G.W. Irving, Jr., USDA. 1946. From pea wilt.
- Fusarium oxysporum f. vasinfectum (Atkinson) Snyder and Hansen  
 7808 C.D. Sherbakoff, strain CR9, Univ. of Tennessee. 1940. From cotton wilt.
- Fusarium poae (Peck) Wollenweber  
 10961 (*Sporotrichum poae*) W.F. Jeffers, Univ. of Maryland. 1951.  
 11768 (*F. sporotrichoides*) QMRDC, strain 753. 1954. G.F. Weber.
- Fusarium radicicola Wollenweber: See *Hypomyces ipomoea*
- Fusarium roseum Link  
 10914 W.F. Jeffers, Univ. of Maryland. 1951.  
 12822 R.W. Thoma, strain SC 2345, Squibb Inst. Med. Res., New Brunswick, N.J. 1957.
- Fusarium sambucinum Fuckel f. 6 Wollenweber  
 11852 CBS, Wollenweber strain 5406. 1954.
- Fusarium scirpi Lambotte and Fautrey  
 11853 CBS, strain Wollenweber. 1954.
- Fusarium solani (Martius) Appel and Wollenweber (= *Nectria haematococca* Berkeley and Broome)  
 11712 W.C. Snyder, strain SC 16, Univ. of California, Berkeley. 1953. From squash. Received as *Hypomyces solani*.  
 12823 R.W. Thoma, strain SC 2609, Squibb Inst. Med. Res., New Brunswick, N.J. 1957.
- Fusarium solani f. pisi (Jones) Snyder and Hansen  
 10915 W.F. Jeffers, Univ. of Maryland. 1951.

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Fusarium sporotrichoides Sherbakoff: See Fusarium poae

Fusicladium effusum Winter

11320 J.R. Cole, USDA. Albany, Georgia. 1952.

12735 and 12736 R.H. Converse, strains W-11 and M-1, Oklahoma A. and M. Coll., Stillwater. Monosporous isolates.

Gelasinospora calospora (Mouton) Moreau

12558 C.J. Alexopoulos, strain B<sub>2</sub>, Michigan State Univ. 1956. Homothallic.

Gelasinospora calospora var. autostera Alexopoulos and Sung

10964 and 10965 C.J. Alexopoulos, Sex A and Sex B. Heterothallic strains from leaves of *Tillandsia*.

Gelasinospora cerealis Dowding

6684 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.

11344 E.S. Dowding, Univ. of Alberta, Canada. 1952. From roots of cereals.

Gelasinospora tetrasperma Dowding

11345 E.S. Dowding. 1952. From parsnip seed.

Geomyces vulgaris Traaen

6685 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.

Geotrichum candidum Link ex Fries

755 (*Oidium asteroides*) A. Castellani, Tulane Univ. 1926.

4139 (*Oidium matalense*) A. Castellani, Tulane Univ. 1927. Cf. J.W. Carmichael, *Mycologia*, 1957, 49, 820.

4798 (*Oospora lactis*) F.W. Tanner, Univ. of Illinois. 1926.

7471 (*Geotrichum versiforme*) C.W. Emmons, strain 3905, NIH. 1950.

10834 CBS. 1951.

11115 NRRL, strain 1365. 1952. Fat synthesizing strain from Germany.

12784 (*Oospora camemberti*) CBS. 1957.

Geotrichum candidum var. citri-aurantii (Ferraris) Cifferi

7019 (*Oospora citri-aurantii*) H.S. Fawcett, strain SA 122, Univ. of California, Riverside. 1938. From lemon, Argentina.

Gibberella baccata (Wallroth) Saccardo

11857 (*Fusarium lateritium*) CBS. 1954.

Gibberella fujikuroi (Sawada) Wollenweber

10052 (*Fusarium moniliforme*) P.B. Marsh, strain 1004.1, USDA. 1946. QMRDC strain 1224. Military specifications for fungus resistance tests.

10704 J.A. Stevenson, USDA. 1949. E.C. Tullis, from stalk rot of sorghum.

11573 K. Sato, strain 4473, IFO. 1953.

12616, 12617 and 12618 CMI, strains 58290, 58293 and 58294. 1956. P.W. Brian, Butterwick Research Lab., England, strains 917, 1135 and 1139. Production of gibberellic acid.

12763 W.L. Gordon, strain 4150, Univ. of Manitoba. 1957.

12776 W.L. Gordon, strain T2a. 1957. Perithecial strain from *Hibiscus*, Trinidad.

12777 W.L. Gordon, strain 3890. Southern Rhodesia.

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### Gibberella fujikuroi (Continued)

- 12778 W.L. Gordon, strain 3902. India.
- 12780 W.L. Gordon, strain 4119. Sierra Leone.
- 12781 W.L. Gordon, strain 4157. Uruguay
- 12782 W.L. Gordon, strain 4169. Pakistan.

### Gibberella fujikuroi var. anthophilum (A. Braun) Wollenweber

- 12765 W.L. Gordon, strain 3080. 1957.

### Gibberella fujikuroi var. subglutinans (Wollenweber and Reinking) Edwards

- 11557 CBS. 1952.
- 12764 W.L. Gordon, strain 3687, Univ. of Manitoba. 1957.

### Gibberella zeae (Schweinitz) Petch

- 10910 W.F. Jeffers, Univ. of Maryland. 1951.

### Gliocladium aureum Rader

- 10406\* W.E. Rader, Shell Oil Co., Modesto, Calif. 1948.

### Gliocladium catenulatum Gilman and Abbott

- 10523 NRRL, strain 1091. 1948.

### Gliocladium deliquescens Sopp

- 10097 C. Thom, strain 457, USDA. 1946. NRRL strain 1086.

### Gliocladium fimbriatum: See Myrothecium verrucaria and Trichoderma

### Gliocladium roseum (Link ex Fries?) Bainier: See also Nectria gliocladioides

- 8684 NRRL, strain 1859. 1942.
- 10521 NRRL, strain 1085. 1948.
- 12259 (Clonostachys araucaria var. rosea) L.W. Durrell, Colorado A. and M. Coll. 1955.

### Gliocladium vermoeseni (Biourge) Thom

- 10522 NRRL, strain 1752. H.S. Fawcett, Univ. of California. From lemon, Spain.

### Gliocladium sp.

- 11081 P.W. Brian, strain 650, Butterwick Research Lab., England. 1951. Production of antibiotics. Experientia, 1951, 7, 266.

### Gliomastix convoluta (Harz) Mason

- 9914 NCTC, strain 1134. 1945.

### Gloeosporium album Osterwalder

- 11789 F. Beran, Bundesanst. f. Pflanzenschutz, Vienna. 1954.

### Glomerella cingulata (Stoneman) Spaulding and Schrenk

- 6509 J.A. Stevenson, strain 5365, USDA. 1938. From rhododendron.
- 10529 C.L. Markert, strain W 76, Johns Hopkins Univ. 1948.
- 10534 C.L. Markert, strain B (minus). 1948.
- 12097 F.A. Weiss, ATCC. 1955. From azalea twig blight.

### Glomerella fusarioides Edgerton

- 9552 E.S. Luttrell, strain 57, Georgia Agric. Expt. Sta. 1944. From stems of Asclepias.

### Glomerella glycines (Hori) Lehman and Wolf

- 11871 Lois H. Tiffany, Iowa State Coll. 1954. From alfalfa stems.
- 11872 Lois H. Tiffany. 1954. From soybean stems.

### Glomerella gossypii: See Colletotrichum gossypii

### Gnomonia fragariae Klebahn

- 11430 CBS, strain Groves. 1953.

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### Gnomia ulmea Fries

11431 CBS. 1953.

### Graphium rubrum Rumbold

6505 J.A. Stevenson, strain 5357, USDA. 1938. From blue-stained wood.

### Guignardia bidwellii (Ellis) Viala and Ravaz f. euvitis Luttrell

9559, 9560 and 9561 E.S. Luttrell, strains 120, 123 and 128, Georgia Agric. Expt. Sta. 1944. From American bunch and vinifera grapes.

### Guignardia bidwellii f. muscadinii Luttrell

9562 E.S. Luttrell, strain 133. 1944. From muscadine grape.

### Guignardia vaccinii Shear

6483 J.A. Stevenson, strain 1385, USDA. 1938.

### Hanseniaspora valbyensis Klöcker

10630 (H. guilliermondii) NRRL, strain Y-1625. 1949. CBS.

10631\* NRRL, strain Y-1626. 1949. CBS.

### Hansenula amomala (Hansen) Sydow

580 F.W. Tanner, strain 2577, Univ. of Illinois. 1925. NRRL strain Y-11.

2581 R. Chodat, strain 112, Univ. of Geneva, Switzerland. 1928. NRRL strain Y-52.

4103 F.A. McDermott, Eastern Alcohol Corp. 1927. AMNH strain 660.

8167 and 8168 NRRL, strains Y-365 (rough) and Y-366 (smooth). 1941.

8170 NRRL, strain Y-656. 1941. Seagram and Sons, Inc., strain 20.

8202 E.M. Mrak, strain Pq, Univ. of California, Berkeley. 1941.

9722 (Hansenula lambica) P.R. Burkholder, strain 146, Yale Univ. 1945.

### Hansenula californica (Lodder) Wickerham

10680 NRRL, strain Y-1425. 1949.

### Hansenula mrakii Wickerham

10743\* O.B. Williams, Univ. of Texas. 1949. NRRL strain Y-1364. USDA Tech. Bull. 1029. 1951.

### Hansenula saturnus (Klöcker) H. and P. Sydow

2579 F.W. Tanner, Univ. of Illinois. 1923. NRRL strain Y-12.

2582 R. Chodat, strain 105, Univ. of Geneva, Switzerland. 1928. NRRL strain Y-1.

### Hansenula suaveolens (Klöcker) Dekker

9847 NRRL, strain Y-535. 1945. Selective assimilation of d-xylose. Ind. and Eng. Chem., 1945, 17, 182.

### Haplosporangium parvum Emmons and Ashburn

10784 and 10785 J.W. Carmichael, strains 10 and 190, Univ. of Alberta, Canada. From pulmonary lesions in rodents. U.S. Pub. Health Repts., 1942, 57, 1757.

### Haplosporangium sp.

10903 W.L. Jellison, Rocky Mountain Lab., U.S.P.H. Service. From pulmonary lesions in cony. U.S. Pub. Health Repts., 1951, 65, 1057.



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### Helicobasidium mompa Tanaka

- 11046 J.A. Stevenson, USDA. 1951. K. Ito. Bull. Govt. Formosa  
Expt. Sta. 43. 1949.

### Helicobasidium purpureum Patouillard

- 11070 (Rhizoctonia crocorum) CBS. 1951.

### Helicosporium linderi Moore

- 11826\* G.W. Martin, strain 8737, Univ. of Iowa. 1954. Mycologia,  
1954, 46, 90.

### Helicostylum elegans Corda

- 12745 J.N. Lythgoe, Trinity Coll., Cambridge, England. 1957.

### Helicostylum piriforme Bainier

- 8686 NRRL, strain 1399. 1942.

- 8992 V.M. Cutter, Jr., strain 132, Cornell Univ. 1942.

### Helminthosporium avenae Eidam (= Pyrenophora avenae Ito and Kuribayashi)

- 11264 R.W. Earhart, strain LS-1, Univ. of Florida. 1952.

- 11322 B.A. Oteifa, ATCC. 1952. From oat seedling blight.

### Helminthosporium carbonum Ullstrup

- 11533 Alice L. Robert, strain 53-C-1a (Race 1), USDA. 1953.

### Helminthosporium catenarium Drechsler

- 6689 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938. CBS.

### Helminthosporium gramineum Rabenhorst (= Pyrenophora graminea Ito and Kuribayashi)

- 6695 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.

- 11254 J.J. Christensen, strain 51, Univ. of Minnesota. 1952.

### Helminthosporium leptochloae Nisikado and Miyake

- 6700 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.

### Helminthosporium maydis Nisikado and Miyake (= Cochliobolus hetero- strophus Drechsler)

- 11534 Alice L. Robert, strain 53-h-2a, USDA. 1953.

### Helminthosporium nodulosum (Berkeley and Curtis) Saccardo (= Cochliobolus nodulosus Luttrell)

- 6704 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938. CBS.

### Helminthosporium oryzae Breda de Haan (= Cochliobolus miyabeanus Ito and Kuribayashi)

- 11000 K. Kominami, strain 4153, Nagao Inst., Japan. 1951.

### Helminthosporium papulosum Berg

- 11616 CBS. 1953.

### Helminthosporium portulacae Rader

- 10405 W.E. Rader, Shell Oil Co., Modesto, Calif. 1948.

### Helminthosporium sativum Pammel, King and Bakke (= Cochliobolus sativus [Ito and Kuribayashi] Drechsler)

- 9639 Alice L. Robert, USDA. 1944.

- 11404 A.L. Andersen, strain 16, Michigan State Coll. 1953.

### Helminthosporium setariae Sawada

- 11001 K. Kominami, strain 4065, Nagao Inst., Japan. 1951.

### Helminthosporium sorghicola Lefebvre and Sherwin

- 12111 Helen S. Yu, USDA. 1955.

### Helminthosporium teres Saccardo (= Pyrenophora teres [Diedek.] Drechsler)

- 9640 Alice L. Robert, USDA. 1944.

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### Helminthosporium tritici-repentis Diedeke (= *Pyrenophora tritici-repentis* Drechsler)

6715 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.

### Helminthosporium turcicum Passerini

11535, 11536 and 11537 Alice L. Robert, strains 53-A-17c, 53-B-10a and 53-B-12b, USDA. 1953.

### Helminthosporium victoriae Meehan and Murphy

12566 H.E. Wheeler, strain A56-2, Louisiana State Univ. 1956.

### Hemispora sp.

9476 A.E. de Arêa Leão, strain 1891, IOC. 1947.

### Heterosporium terrestre Atkinson

11419\* R.G. Atkinson, Canada Dept. Agric., St. Catherines, Ontario. Mycologia, 1952, 44, 813.

### Heterosporium tschawytschae Doty and Slater

9915\* M.S. Doty, strain YED 1X, Northwestern Univ. 1945. Amer. Midland Nat., 1946, 36, 663.

### Histoplasma capsulatum Darling

8136 T. Benedek, Northwestern Univ. Med. School, Chicago. 1941.

10230 and 10884 C.W. Emmons, strains 6510 and 6526, NIH. 1951. From clinical histoplasmosis.

10886 and 10888 C.W. Emmons, strains 6613 (rat) and 6620 (soil). 1951.

11378 G.H. Scherr, strain D, Creighton Univ., Omaha, Nebr. From clinical histoplasmosis.

11407 and 11408 C.W. Emmons, strains 6621 (human) and 6617 (skunk), NIH. 1952. Maintained in yeast phase.

11656 L. Ajello, strain A-721, CDC. 1953. From soil.

12700 C.W. Emmons, strain 6624 (human), NIH. 1956. Maintained in yeast phase.

### Hormodendrum compactum Carrion

10222\* C.W. Emmons, strain 8605, NIH. A.L. Carrion. From clinical chromoblastomycosis.

### Hormodendrum hordei Bruhne

12092 R.G. Atkinson, strain 22, Canada Dept. Agric., St. Catherines, Ont. 1955. From soil.

### Hormodendrum pedrosoi: See *Phialophora pedrosoi*

### Humicola grisea Traeen

6725 (*Monotospora daleae*) J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938. QMRDC strain 542. Mycologia, 1953, 45, 951.

11714 K. Sato, strain 4968, IFO. 1954.

### Humicola spp.

11012 D. Perlman, strain SS 210, Squibb Inst. Med. Res., New Brunswick, N.J. 1951.

11743 P.B. Marsh, strain BPI 1.2, USDA. 1953.

### Hymenochaete agglutinans Ellis

12593 CBS. 1956. R.W. Davidson, strain 71707R.

### Hymenochaete tabacina (Sowerby) Lévillé

9394 J.W. Sinden, strain Overholts 24847-R, Pennsylvania State Coll. 1947.

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- Hypholoma sublateritium Schaeffer  
9413 J.W. Sinden, strain Overholts 24856, Pennsylvania State Coll. 1947.
- Hypocrea gelatinosa Tode ex Fries  
7476 (*Trichoderma viride*) G.R. Bisby, CMI. 1939. From single ascus.
- Hypocrea lenta Berkeley and Broome Tode ex Fries  
6485 J.A. Stevenson, strain 1750, USDA. 1940.
- Hypocrea rufa Persoon ex Fries  
7474 (*Trichoderma viride*) G.R. Bisby, CMI. 1933. From single ascospore.
- Hypomyces ipomoeae (Halstead) Wollenweber  
7595 (*Fusarium javanicum* var. *radicicola*) F.A. Weiss, USDA. 1939. From stem canker of lima bean.  
12575 (*Fusarium javanicum* var. *ensiforme*) R.W. Thoma, strain SC 2346, Squibb Inst. Med. Res., New Brunswick, N.J. 1956.
- Hypomyces rosellus (Fries) Tulasne  
6676 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.
- Hypomyces solani: See *Fusarium solani*.
- Hysterium pulicare Persoon ex Fries  
9557 E.S. Luttrell, strain 66, Georgia Agric. Expt. Sta. 1944.
- Idriella lunata Nelson and Wilhelm  
12574\* P.E. Nelson, strain 28B, New York State Coll. Agric., Farmingdale. 1956. *Mycologia*, 1956, 48, 548.
- Irpex consorus Berkeley  
11574 K. Sato, strain 5309, IFO. 1953.
- Itersonilia pyriformis Nyland  
10766\* G. Nyland, Univ. of California, Davis. *Mycologia*, 1949, 41, 686.
- Kabatiella phoradendri (Darling) Harvey  
11129 J.M. Harvey, USDA, Fresno, Calif. 1952. From mistletoe leaf spot.
- Kabatiella phoradendri f. *umbellulariae* Harvey  
11130\* J.M. Harvey. 1952. From anthracnose of *Umbellularia*. Madroño, 1951, 11, 162.
- Kellermannia anomala (Cooke) Hoehnel  
11327 F.A. Weiss, ATCC. 1952. From leaf spot of *Yucca*.
- Kernia brachytricha (Ames) Benjamin  
11223 (*Magnusia brachytricha*) L.M. Ames, ERDC. 1952.
- Kernia spirotricha Benjamin  
12124 R.K. Benjamin, Rancho Santa Ana Bot. Garden, Claremont, Calif. El Aliso, 1955, 3, 199 and 1956, 3, 344.
- Kloeckera africana (Klöcker) Janke  
10632 NRRL, strain Y-1274. 1951. E.M. Mrak.
- Kloeckera antillarum (Klöcker) Janke  
10633 NRRL, strain Y-1379. 1951. CBS.

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### Kloeckera apiculata (Reess) Janke

- 2101 F.W. Tanner, Univ. of Illinois. 1950. NCTC strain 517, NRRL Y-837.  
 9774 (Kloeckera brevis Lodder) P.R. Burkholder, strain 188, Yale Univ. 1945. Assay of vitamins. J. Bact., 1944, 48, 385.  
 10634 NRRL, strain Y-1380. 1953. CBS.  
 10639 (Kloeckera lindneri var. pelliculosa) NRRL, strain Y-1573. 1951. CBS.

### Kloeckera corticis (Klöcker) Janke

- 10635 NRRL strain Y-1381. 1951. CBS.

### Kloeckera javanica (Klöcker) Janke

- 10636 NRRL, strain Y-1383. 1952. CBS.

### Kloeckera jensenii (Klöcker) Janke

- 10637 NRRL, strain Y-1571. 1952. CBS.

### Kloeckera lafarrii (Klöcker) Janke

- 10638 NRRL, strain Y-1572. 1952. CBS.

### Kloeckera magna (De Rossi) Janke

- 10640 NRRL, strain Y-1611. 1952. CBS.

### Lasiobolus equinus (Müller) Massee

- 11269 CBS. 1952.

### Lentinus lepideus Fries

- 11453 Frances F. Lombard, strain 635, USDA. 1953.  
 12653 Frances F. Lombard, USDA. 1956. Madison (Forest Products Lab.) strain 534. E.E. Hubert strain 267.

### Lentinus tigrinus Bulliard ex Fries

- 9406 J.W. Sinden, strain Overholts FP 50390-R. Pennsylvania State Coll. 1947.  
 11779 Frances F. Lombard, strain ERT-226, USDA. 1954.

### Lenzites betulina Linnaeus ex Fries

- 11575 K. Sato, strain 4964, IFO. 1953.

### Lenzites saepiaria Wulfen ex Fries

- 9419 J.W. Sinden, strain Overholts 24852-R, Pennsylvania State Coll. 1947.  
 12677 Frances F. Lombard, Madison strain 604, USDA. 1956.

### Lenzites trabea Persoon ex Fries

- 8715 R.W. Davidson, USDA. 1942.  
 11539 Frances F. Lombard, strain FP 39264, USDA. 1953. Madison strain 617.

### Lepiota procera Scopoli ex Fries

- 10937 W.F. Jeffers, Univ. of Maryland. 1951.

### Leptodiscus terrestris Gerdemann

- 11897\* J.W. Gerdemann, strain 4-8, Univ. of Illinois. 1954. Phytopath., 1954, 44, 451.

### Lichtheimia: See Absidia

### Linderina pennisporea Raper and Fennell

- 12442\* NRRL, strain 2237. 1956. Amer. J. Bot., 1952, 39, 81.

### Lipomyces lipoteras (den Dooren de Jong) Lodder and Kreger-van Rij

- 10742 NRRL, strain Y-1351. 1948.

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- Lipomyces starkeyi Lodder and Kreger-van Rij  
12659\* NRRL, strain Y-1389. 1956. R. L. Starkey strain 74a.
- Lophotrichus ampullus Benjamin  
11220 L. M. Ames, ERDC. 1952.
- Lophotrichus martinii Benjamin  
11221 L. M. Ames, ERDC. 1952.
- Macrophomina phaseoli (Maublanc) Ashby  
6497 J. A. Stevenson, strain 1972, USDA. 1938.  
12265 (Sclerotium bataticola) L. W. Durrell, Colorado A. and M.  
Coll. 1955.
- Madurella americana Gammel  
9463 A. E. de Arêa Leão, strain 1182, IOC. 1947.
- Madurella grisea MacKinnon et al.  
10793 and 10794 J. E. MacKinnon, strains 852 and 927, Inst. Higiene,  
Montevideo. 1950. From clinical maduramycosis.
- Magnusia brachytricha and M. spirotricha: See under Kernia
- Malbranchea pulchella Saccardo and Penzig  
9989 W. W. Diehl, strain 1945, USDA. 1946.
- Marasmius peronatus Bolton ex Fries  
12114 CBS. 1955. Monosporous isolate
- Melanconium fuliginum (Saccardo and Viala) Cavara  
11174 V. G. Lilly, strain 241, West Virginia Univ. 1952. Assay of  
thiamine. Mycologia, 1951, 43, 625.
- Melanospora damnosa (Saccardo) Lindau  
12339 CBS. 1955.
- Melanospora parasitica Tulasne  
11103 CBS. 1951. On Isaria farinosa.
- Melanospora zamiae Corda  
12340 CBS. 1955.
- Memnoniella echinata (Rivolta) Galloway  
11973 E. G. Simmons, strain 1225, QMRDC. 1954. AMC strain 37.  
Military specifications for fungus resistance tests.
- Merulius americanus Burt  
11483 Frances F. Lombard, strain 97366-Sp, USDA. 1950.
- Merulius lacrymans Jacquin ex Fries  
4798 NCTC, strain 2309. 1932.  
11484 and 11485 Frances F. Lombard, strains H-595-R and  
90876-R, USDA. 1953.
- Microascus trigonosporus Emmons and Dodge  
10151 W. W. Diehl, USDA. 1946. M. D. Whitehead, Oklahoma State  
Coll. From soybean seed.
- Microsporum audouini Gruby  
9079 C. W. Emmons, strain 233, NIH. 1943.  
10008 and 10216 C. W. Emmons, strains 239 and 243, NIH. 1947.  
From scalp ringworm.  
11347 and 11348 C. W. Emmons, strains 249 and 250. 1952. From  
scalp ringworm.  
12332 and 12333 K. Sato, strains 6074 and 6075, IFO. 1955.



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### Microsporum canis Bodin

- 9865 A.B. Hoerlein, strain 1019, Cornell Univ. 1945. From cat.  
10214 C.W. Emmons, strain 237, NIH. 1947. From scalp ringworm.  
11621 and 11622 M.L. Littman, strains Vasquez and Robinson, Mt. Sinai Hospital, New York, N.Y. 1953. From clinical dermatophytosis.

### Microsporum gypseum (Bodin) Guiart and Grigorakis

- 6286 H.W. Schoening, USDA. 1938. From guinea pig.  
9083 C.W. Emmons, strain 235, NIH. 1943.  
10215 C.W. Emmons, strain 238. 1947. From tinea favosa.  
11395 M.A. Gordon, strain A582, CDC. 1952. From soil.  
11658 L. Ajello, strain A 723, CDC. 1953. From soil.

### Microsporum nanum Fuentes

- 11832\* C.A. Fuentes, Univ. of Havana. 1954. Mycologia, 1956, 48, 614.

### Microthyriella rubi Petrak

- 11510 W.C. Snyder, Univ. of California, Berkeley. 1953.

### Monascus albidus Sato

- 11384 K. Sato, strain 4489, IFO. 1952.

### Monascus purpureus Went

- 6405 J.G. Harrar, Virginia Agric. Expt. Sta., Blacksburg. 1938.

### Monilochaetes infuscans Halsted ex Harter

- 12281 W.F. Jeffers, Univ. of Maryland. 1955.

### Monotospora brevis (Gilman and Abbott) Mason

- 9472 A.E. de Arêa Leão, strain 1761, IOC. 1947.

### Monotospora daleae: See Humicola grisea

### Morchella esculenta (Linnaeus) Persoon

- 10968 Frances F. Lombard, strain S, USDA. 1951.

### Mortierella alpina Peyronel

- 8979 V.M. Cutter, Jr., strain 160, Cornell Univ. 1942.

### Mortierella pusilla Oudemans

- 8978 V.M. Cutter, Jr., strain 170, Cornell Univ. 1942.

### Mortierella pusilla var. isabellina (Oudemans) Zycha

- 11715 K. Sato, strain 5426, IFO. 1954.

### Mucor abundans Povah

- 11010 D. Perlman, strain SS 192, Squibb Inst. Med. Res., New Brunswick, N.J. 1951.

### Mucor adventitius Oudemans var. aurantiacus Lendner

- 8768 and 8772 V.M. Cutter, Jr., strains 215 and 201, Cornell Univ. 1942. From vegetable seeds.

### Mucor christianiensis: See Circinella umbellata

### Mucor circinelloides van Tieghem

- 1209 A.F. Blakeslee, CIW. 1938.

- 8542 (-) D.H. Linder, Harvard Univ. 1942. A.F. Blakeslee strain C81.

### Mucor dubium Wehmer

- 8540 D.H. Linder, Harvard Univ. 1942. A.F. Blakeslee strain C973.

### Mucor fragilis Bainier

- 10777 CBS. 1950.

### Mucor genevensis Lendner

- 8976 V.M. Cutter, Jr., strain 88, Cornell Univ. 1942.

## FUNGI AND YEASTS

### Mucor griseo-cyanus Hagem

1207a (+) and 1207b (-) A.F. Blakeslee, CIW. 1938.

### Mucor hiemalis Wehmer

1205 (-) A.F. Blakeslee, CIW. 1938.

8690 NRRL, strain 1419. 1942.

8977a (+) and 8977b (-) V.M. Cutter, Jr., strains 82 and 83,  
Cornell Univ. 1942.

### Mucor hiemalis var. albus Lendner

6800 (-) A.F. Blakeslee, CIW. 1938.

### Mucor javanicus Wehmer

8770 V.M. Cutter, Jr., strain 208, Cornell Univ. 1942. From  
corn seed.

### Mucor microsporum Namyslowski

8541 D.H. Linder, Harvard Univ. 1942. A.F. Blakeslee strain C75.

### Mucor mucedo Brefeld

7941 V.M. Cutter, Jr., strain 65, Cornell Univ. 1941.

9635 (-) D.H. Linder, strain C 1032, Harvard Univ. 1944.

9836 and 9838 V.M. Cutter, Jr., strains 544 and 191. 1945.

### Mucor parasiticus Bainier

6476 J.A. Stevenson, strain 1270, USDA. 1938.

### Mucor plumbeus Bonorden

4740 (Mucor spinosus) CBS. 1931.

6795 (+) A.F. Blakeslee, CIW. 1938.

8773 V.M. Cutter, Jr., strain 151, Cornell Univ. 1942. From  
pea seed.

### Mucor plumbeus var. spinescens Lendner

8771 V.M. Cutter, Jr., strain 204, Cornell Univ. 1942. From  
pea seed.

### Mucor racemosus Fresenius

1216a (+) and 1216b (-) A.F. Blakeslee, CIW. 1938.

7928 and 7935 V.M. Cutter, Jr., strains 28 and 52, Cornell Univ.  
1941.

### Mucor ramannianus Moeller

9515 O. Felsenfeld, Chicago Med. School. 1944.

9628 V.M. Cutter, Jr., Cornell Univ. 1944. G.W. Martin.

### Mucor recurvus Butler

11265\* E.E. Butler, Univ. of Minnesota. 1952. Mycologia, 1952,  
44, 561.

### Mucor rouxianus (Calmette) Wehmer

4855 and 5857 E.B. Fred, Univ. of Wisconsin. 1932. A.F. Blakes-  
lee strains C 1067 and C 980.

8097 C.P. Hegarty, strain 704, Georgetown Univ. 1941. G. Knaysi.

### Muellerella nigra Routien

12756\* J.B. Routien, strain 17M48, Chas. Pfizer Co., Brooklyn,  
N.Y. 1957. Bull. Torrey Bot. Club, 1956, 83, 403.

### Myceliophthora inflata Burnside

10843 CBS. 1951. C.E. Burnside. From honey bee.

### Mycocandida riboflavina C.W. Dodge

11155 NRRL, Anheuser-Busch strain 921. 1952.

### Mycoderma cerevisiae, M. lafarrii, and M. vini: See Candida mycoderma

### Mycoderma lipolytica: See Candida lipolytica

## FUNGI AND YEASTS

### Mycoderma spp.

6432 L.A. Rogers, USDA. 1938. From lactic starter.

9225 M. Rogosa, USDA. 1943. From Ga lactic starter.

### Mycogone perniciosa Magnus

10934 W.F. Jeffers, Univ. of Maryland. 1951. T.T. Ayers, USDA.  
From cultivated mushroom.

### Mycogone sp.

11340 W.F. Jeffers, 1952. T.T. Ayers strain 378.

### Mycosphaerella caryigena (Ellis and Everhart) Hoehnel

12737 (*Cercospora caryigena*) R.H. Converse, strain DS-1,  
Oklahoma A. and M. Coll. 1957.

### Mycosphaerella ligulicola Baker et al.

10748 (*Ascochyta chrysanthemi*) L.H. Davis, Univ. of California,  
Los Angeles. 1949. *Phytopath.*, 1949, 39, 799.

### Mycotypha dichotoma Wolf

12134\* J.A. Stevenson, USDA. 1955. F.A. Wolf. From pine seed.

### Mycotypha microspora Fenner

8982\* V.M. Cutter, Jr., strain 117, Cornell Univ. 1942.

### Myiocopron smilacis (De Notaris) Saccardo

9459 and 9550 E.S. Luttrell, strains 1 and 7, Georgia Agric. Expt.  
Sta. 1944.

### Myriangium asterinosporum (Ellis and Everhart) Miller

11179 A.E. Jenkins, strain 176, USDA. 1951. From *Crataegus*.

### Myriangium catalinae Fairman

11180 Anna E. Jenkins, strain 633, USDA. 1951. From *Salvia*.

### Myrothecium verrucaria Ditmar ex Fries

9095 (*Mettarrhizium glutinosum*) P.B. Marsh, strain 1334.2, USDA.  
1943. Military specifications for fungus resistance tests.  
QMRDC strain 460, NRRL 2003.

### Nadsonia elongata Konokotine

10644 NRRL, strain Y-1568. 1949. CBS.

10646 (*Nadsonia rickteri*) NRRL, strain Y-1617. 1952. CBS.

### Nadsonia fulvescens (Nadson and Konokotine) Sydow

10645 NRRL, strain Y-991. 1949. C.B. van Niel.

### Nectria cinnabarina Tode ex Fries

11432 CBS, strain 11a. 1953.

### Nectria galligena Bresadola

11684 and 11685 CMI, strains 12280 and 12280b. 1953. From twigs  
of *Fraxinus*.

### Nectria gliocladioides Smalley and Hansen

12881\* E.B. Smalley, Univ. of Wisconsin. 1957. *Mycologia*, 1957,  
49, 529.

### Nematospora coryli Peglion

10647 NRRL, strain Y-984. 1949. E.M. Mrak.

10648 (*Nematospora nagpuri*) NRRL, strain Y-1569. 1949. CBS.

10661 (*Nematospora phaseoli*) NRRL, strain Y-1618. 1949. CBS.

### Neocosmospora vasinfecta Smith

11686 CMI, strain 49786. 1953. From soil, Pakistan.

## FUNGI AND YEASTS

### Neonectria caespitosa (Fuckel) Wollenweber

- 6677 (Cylindrocarpon ehrenbergii) J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.

### Neurospora crassa Shear and Dodge

- 9277 G.W. Beadle, strain 34486 (sex A), California Inst. Technol. 1944. Assay of choline.
- 9278 G.W. Beadle, strain 1633 (sex A). 1944. Assay of p-aminobenzoic acid.
- 9279 G.W. Beadle, strain 1 (wild type, sex A). 1944.
- 9344 G.W. Beadle, strain 33757-4637 (sex A). 1947. Assay of leucine.
- 9683 G.W. Beadle, strain 37401 (sex a). 1945. Assay of inositol.
- 10333 G.W. Beadle, strain 9185-H-SA (sex A). 1948. Assay of thiamine.
- 10334 G.W. Beadle, strain 51505-3003-8 (sex a). 1948. Assay of proline.
- 10335 G.W. Beadle, strain 4545 (sex a). 1948. Assay of lysine.
- 10336 and 10337 G.W. Beadle, strains Abb4 (wild type A) and Abb12 (wild type A). 1948.
- 10767 G.W. Beadle, strain 65001 (sex a). 1950.
- 10780 G.W. Beadle, strain 38706. 1950. Assay of methionine.
- 10815 and 10816 B.O. Dodge, strains 5256A and 5297a, New York Botanical Garden. 1950. G.W. Beadle.
- 11063 G.W. Beadle, strain 28610. 1951. Assay of adenine and hypoxanthine.
- 11519 and 11520 G.W. Beadle, strains 3416 R1A and 4540 R2A. 1953. Require nicotinic acid.
- 11521 G.W. Beadle, strain 39401 R1. 1953. Requires tryptophane and niacin.
- 11943 Mary B. Mitchell, strain 94R1a, California Inst. Technol. 1954. Requires histidine.
- 11993 Mary B. Mitchell, strain 1298. 1954. Requires uridine.
- 12623 H.K. Mitchell, strain 36601, California Inst. Technol. 1956. Accumulates orotic acid and oxotidine. J. Biol. Chem., 1948, 172, 525.
- 12758 CMI, strain 68614. 1957. D.H. Smyth, strain 3411

### Neurospora intermedia Tai

- 11513, 11514 and 11515 E. Quisumbing, strains X, X-1 and X-2, Philippine National Museum. 1952. Hydrolysis of starch.

### Neurospora sitophila Shear and Dodge

- 9276 G.W. Beadle, strain 299 (sex A), California Inst. Technol. 1944. Assay of pyridoxine and biotin.

### Neurospora tetrasperma Shear and B.O. Dodge

- 6484 J.A. Stevenson, strain 1396, USDA. 1938. Homothallic.
- 9457 V.M. Cutter, Jr., Yale Univ. 1948. Homothallic.

### Nigrospora oryzae (Berkeley and Broome) Petch

- 11068 J.A. Stevenson, USDA. 1951.
- 12771 R.D. Muir, strain M 332, Searle and Co., Chicago. 1957. From road tar.

### Nigrospora sphaerica (Saccardo) Mason

- 11687 CMI, strain 46685. 1953. From orchard grass.

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### Nigrospora sphaerica (Continued)

12261 L.W. Durrell, Colorado A. and M. College, Fort Collins.  
1955.

12772 R.D. Muir, strain M 335, Searle and Co., Chicago. 1957.  
QMRDC strain 1253.

### Nigrospora spp.

12773 and 12774 R.D. Muir, strains M 333 and M 334. QMRDC  
strains 785 and 786.

Oidiodendron nigrum: See Trichosporium cerealis

### Omphalia flavida (Cooke) Maublanc and Rangel

12578 F.L. Wellman, USDA, Turrialba, Costa Rica. From coffee  
tree.

Oospora: See also Geotrichum

### Oospora fragrans Berkhout

11247 (O. suaveolens) NRRL, strain Y-699. 1952. Massachusetts  
Inst. Technol., strain 323.

### Opercullella padwickii Kheswalla

10083\* B.B. Mundkur, strain GC 285, Agric. Res. Inst., New Delhi,  
India. From chick pea. Indian J. Agric. Sci., 1941, 11, 316.

### Ophiobolus fulgidus (Cooke and Peck) Saccardo

9556 E.S. Luttrell, strain 65, Georgia Agric. Expt. Sta. 1944.

### Ophiobolus graminis Saccardo

11609 K. Sato, strain 5278, IFO. 1953.

12761 Elizabeth Turner, California Inst. Technol., Pasadena. 1957.  
From winter wheat, England.

### Ophiobolus graminis var. avenae Garrett

12762 Elizabeth Turner. 1957. From winter oats, Wales.

### Ophiobolus herpotrichus (Fries) Saccardo

12279 CBS. 1955.

### Ophiobolus miyabeanus Ito and Kuribayashi

11608 K. Sato, strain 5277, IFO. 1953.

Ophiostoma: See Ceratocystis

### Ovulinia azaleae Weiss

11544, 11545 and 11546 F.A. Weiss, ATCC. 1953. From flower  
blight of cultivated azaleas.

11896 Mavis R. Paton, Univ. of Glasgow. 1954. Ascospore culture.

### Paecilomyces cremeo-rosei Chaves-Batista

12076\* A. Chaves-Batista, strain 232, Univ. of Recife, Brazil. 1955.

### Paecilomyces dactylethromorphis Chaves-Batista and Maia

11971\* A. Chaves-Batista, strain 235. 1954.

### Paecilomyces elegans

8301 T. Benedek, Northwestern Univ. 1941.

### Paecilomyces varioti Bainier

1114 C. Thom, USDA. 1938. Mold of leather.

10121 C. Thom, strain 535-34, USDA. 1946. NRRL strain 1115.

10865 NRRL, strain 1282, 1951. K. Sakaguchi. Production of ethyl-  
ene oxide dicarboxylic acid. Zblt. Bakt., Abt. II, 1939, 100, 302.



## FUNGI AND YEASTS

### Panus stipticus Bulliard ex Fries

11015 and 11016 Frances F. Lomoard, strains 57413-S and 71510-Sp, USDA. 1951.

### Papularia sphaerosperma (Fries) Hoehnel

6732 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.

### Papulaspora stoveri Warren

11173 W.L. White, strain 177, Harvard Univ. 1952. From roots of sugar beet seedlings.

### Papulaspora sp.

11341 W.F. Jeffers, Univ. of Maryland. 1952. T.T. Ayers strain 324. From cultivated mushroom.

### Parasitella simplex Bainier

11077(-) NRRL, strain 1460. 1951.

### Pellicularia koleroga Cooke

12129 E.C. Tims, Louisiana State Univ. 1955.

12576 F.L. Wellman, USDA, Turrialba, Costa Rica. From coffee tree.

### Pellicularia filamentosa: See *Rhizoctonia solani*

### Penicillium<sup>4</sup>

#### Penicillium aculeatum Raper and Fennell

10409 NRRL, strain 2129. 1948. *Mycologia*, 1948. 40, 535.

#### Penicillium adamantzi Zaleski

10407\* NRRL, strain 737. 1948. Thom strain 5010.1. CBS.

#### Penicillium albidum Sopp

10408 NRRL, strain 2043. 1948. CBS.

#### Penicillium asperum (Shear) Raper and Thom

10410\* NRRL, strain 715. 1948. Thom strain 5236.26. C.L. Shear.

#### Penicillium atramentosum Thom

10104\* C. Thom, strain 4733.3, USDA. 1946. NRRL strain 795.

#### Penicillium aurantio-candidum Dierckx ex Biourge

10411\* NRRL, strain 884. 1948. Thom strain 4733.6.

#### Penicillium aurantioviolaceum Biourge

10412 NRRL, strain 760. 1948. Thom strain 5534.9.

#### Penicillium aurantiovirens Biourge

10413\* NRRL, strain 2138. 1948. G. Smith, London Sch. Hyg. and Trop. Med.

#### Penicillium avellaneum Thom and Turesson

10414 NRRL, strain 1938. 1948.

10119 C. Thom, strain 4401, USDA. 1946. NRRL strain 1005.

#### Penicillium baarnense van Beyma

10415\* NRRL, strain 2086. 1948. CBS.

#### Penicillium bacillosporium Swift

10126\* NRRL, strain 1025. 1946. Thom strain 5256.25. Marjorie E. Swift.

#### Penicillium biforme Thom

10416\* NRRL, strain 885. 1948. Thom strain 39.

#### Penicillium botryosum Chaves-Batista and Maia

12068\* A. Chaves-Batista, strain 32, Univ. of Recife, Brazil. 1955.

<sup>4</sup>Changes to type descriptions of species of *Penicillium* given in the Manual of the *Penicillia* by Raper and Thom (Williams and Wilkins, 1949) are not repeated here.

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### Penicillium brasilianum Chaves-Batista

12072\* A. Chaves-Batista, strain 56. 1955.

### Penicillium brefeldianum Dodge

10417\* NRRL, strain 2083. 1948.

### Penicillium brevicompactum Dierckx

9056 NRRL, strain 864, 1943. Thom strain 4733.21.

10418 NRRL, strain 2011. 1948. CBS, 1946.

### Penicillium camemberti Thom

4845\* C. Thom, strain 5, USDA. 1932. NRRL, strain 877. From French Camembert cheese.

6985 W. Johnson, USDA. 1938. Gray variety used in manufacture of Camembert cheese.

### Penicillium canescens Sopp

10419 NRRL, strain 910. 1938. Thom strain 2654.

### Penicillium capsulatum Raper and Fennell

10420\* NRRL, strain 2056. 1948. Mycologia, 1948, 40, 528.

### Penicillium carneolutescens G. Smith

10421\* NRRL, strain 2035. 1948. CBS.

### Penicillium casei Staub

10422 NRRL, strain 844. 1948. Thom strain 5056.

### Penicillium caseicolum Bainier

6986 W. T. Johnson, USDA. 1938. White variety used in manufacture of Camembert cheese.

10387 and 10423\* NRRL, strains 874 and 875. 1948. Thom strains 6 and 4640.440.

### Penicillium charlesii G. Smith

8730\* NRRL, strain 1887. 1942. G. Smith, London School Hyg. and Trop. Med.

### Penicillium chermesinum Biourge

10424 NRRL, strain 2049. 1948.

### Penicillium chrysogenum Thom

9480 NRRL, strain 1951. 1944. Prototype of high penicillin-yielding strains.

10002 NRRL. 1946. Univ. of Wisconsin strain Q-176. High yielding penicillin strain developed by ultra-violet treatment of strain X-1612.

10003 NRRL, strain 2000. 1946. Carnegie Inst. strain X-1612, developed by X-ray treatment of NRRL strain 1951.B25.

10106\* C. Thom, strain 26, USDA. 1946. NRRL strain 807.

10107 C. Thom, strain 5034.11, USDA. 1946. NRRL strain 811. Production of gluconic acid.

10134 NRRL, strain 1984.A. 1946. A substrain of Minnesota strain R 13.

10238 NRRL, strain 1951.B25. 1947. Penicillin production in submerged culture.

11702-11708 M. P. Backus, Univ. of Wisconsin. 1953. Seven strains of the Wisconsin "47" and "48" series of mutants selected for penicillin yield, now superseded by later selections.

11709 and 11710 M. P. Backus, strains 49-133 and 49-2105, Univ. of Wisconsin. 1953. High yielding sporulating penicillin strains.

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## Penicillium chrysogenum (Continued)

- 12687-12690 M.P. Backus, strains Wis. F3, F3-64, 51-20 and 53-414. 1956. High yielding nonpigmented penicillin strains.

## Penicillium citreoviride Biourge

- 10425 NRRL, strain 2046. 1948.

## Penicillium citrinum Thom

- 8506 NRRL, strain 1843. 1942. G. Smith, London School Hyg. and Trop. Med. Produces citrinin. Roy. Soc. London, Phil. Trans., Ser. B, 1931, 220, 269.  
9849 U.S. Bureau of Standards, strain 11. 1945. NRRL strain 756; QMRDC 1226. Fungus resistance testing.  
10105 C. Thom, strain 5261.6, USDA. 1946. NRRL strain 806.  
11972 A. Chaves-Batista, strain 247, Univ. of Recife, Brazil. 1954.

## Penicillium claviforme Bainier

- 9257 NRRL, strain 1002. 1943. Thom strain 4733.39.1. Production of claviformin (patulin).  
10426 NRRL, strain 2031. 1948. CBS.

## Penicillium clavigerum Demelius

- 10427 NRRL, strain 1003. 1948. Thom strain 5424.237.

## Penicillium commune Thom

- 10428\* NRRL, strain 890. 1948. Thom strain 23; QMRDC 1269.

## Penicillium corylophilum Dierckx

- 9784 NRRL, strain 802. 1945. Thom strain 4733.42.

## Penicillium corymbiferum Westling

- 10429 NRRL, strain 2032. 1948. CBS.

## Penicillium crustosum Thom

- 9845 NRRL, strain 969. 1945. Thom strain 5730.3.  
10430 NRRL, strain 968. 1948. Thom strain 5461.448.

## Penicillium cyaneofulvum Biourge

- 10431\* NRRL, strain 837. 1948. Thom strain 4733.47.  
11923 E.G.D. Murray, McGill Univ., Montreal. 1954.

## Penicillium cyaneum (Bainier and Sartory) Biourge

- 10432\* NRRL, strain 775. 1948. Thom strain 4640.422.

## Penicillium cyclopium Westling

- 7615 F.A. Weiss, strain 766, USDA. 1939.  
8507 NRRL, strain 942. 1942. Thom strain 4733.48.  
8731 NRRL, strain 1888. 1942. H. Raistrick, strain 123, London School Hyg. and Trop. Med. Production of penicillic acid.  
10433 NRRL, strain 1899. 1948. H.W. Florey, strain M-22, Oxford Univ. Production of penicillic acid.

## Penicillium cyclopium Westling var. echinulatum Raper and Thom

- 10434\* NRRL, strain 1151. 1948.

## Penicillium daleae Zaleski

- 10435\* NRRL, strain 2025. 1948. CBS.

## Penicillium decumbens Thom

- 10436 NRRL, strain 742. 1948. Thom strain 5330.

## Penicillium digitatum Saccardo

- 10039 NRRL, strain 786. 1946. Thom strain 176. Green mold of citrus fruit.

## Penicillium diversum Raper and Fennell

- 10437\* NRRL, strain 2121. 1948.

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Penicillium diversum var. aureum Raper and Fennell

10438\* NRRL, strain 1074. 1948.

Penicillium duclauxi Delacroix

9121 NRRL, strain 1031. 1943.

10439 NRRL, strain 1030. 1948. Thom strain 4733.53.

10440 NRRL, strain 2020. 1948.

Penicillium duponti Griffon and Maublanc

10518 NRRL, strain 2155. 1948. R. Emerson, strain 26. From retting of guayule; thermophilic.

Penicillium egyptiacum van Beyma

10441\* NRRL, strain 2090. 1948. CBS.

Penicillium ehrlichii Klebahn

10442\* NRRL, strain 708. 1948. Thom strain 5226. Hydrolyzes pectin.

Penicillium expansum Link

7861 C. Thom, strain 4852, USDA. 1940. NRRL strain 976. Blue mold rot of apples.

Penicillium fellutanum Biourge

10443 NRRL, strain 746. 1948.

Penicillium frequentans Westling

10103 C. Thom, strain 4733.5. USDA. 1946. NRRL strain 766.

10444 NRRL, strain 1915. 1948. G. Smith, strain Ad. 6, London School Hyg. and Trop. Med.

11080 P.W. Brian, Butterwick Res. Lab., Welwyn, England. 1951. NRRL strain 532. Produces frequentin.

Penicillium funiculosum Thom

8725 (Penicillium pinophilum) NRRL, strain 1032a. 1942.

9644 W.H. Weston, Harvard Univ. 1944. QMRDC strain 391. Military specifications for fungus resistance tests.

9846 NRRL, strain 1035. 1945. Thom strain 5403.53.

10446 NRRL, strain 1768. 1948. C.W. Hesseltine, Univ. of Wisconsin.

11797 P.B. Marsh, strain 66, USDA. 1954. QMRDC strain 474. Conidial strain, nonascigerous.

Penicillium fuscum (Sopp) Raper and Thom

10477 NRRL, strain 721. 1948. Thom strain 5179.4.

Penicillium gladioli Machacek

9437 P.W. Brian, Butterwick Res. Lab., Welwyn, England. 1947. Produces gladiolic acid. Nature, 1946, 157, 697.

10448 NRRL, strain 939. 1948. Thom strain 4885. Lucia McCulloch, USDA. From blue mold rot of gladiolus corms.

Penicillium granulatum Bainier

10450 NRRL, strain 2036. 1948.

Penicillium griseofulvum Dierckx (? P. terrestre Jensen)

11885 NRRL, strain 2300. 1954. Raistrick strain P-38. Production of griseofulvin.

Penicillium helicum Raper and Fennell

10451\* NRRL, strain 2106. 1948. Mycologia, 1948, 40, 515.

Penicillium herquei Bainier and Sartory

10118\* C. Thom, strain 4640.447, USDA. 1946. NRRL strain 1040.

Penicillium humuli van Beyma

10452\* NRRL, strain 872. 1948. Thom strain 5633.3. CBS.

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- Penicillium implicatum Biourge  
10453 NRRL, strain 2054. 1948.
- Penicillium islandicum Sopp  
10127 C. Thom, strain 658.144.2, USDA. 1946. NRRL strain 1036.
- Penicillium italicum Wehmer  
10129 C. Thom, strain 4733.126, USDA. 1946. NRRL strain 982.  
Blue mold of citrus fruit.
- 10454 NRRL, strain 983. 1948. Thom strain 5066.1. H.S. Fawcett,  
Univ. of California.
- Penicillium janthinellum Biourge  
10069 C. Thom, strain 5019, USDA. 1946. NRRL strain 904.
- 10455 NRRL, strain 2016. 1948.
- Penicillium javanicum van Beyma  
9099\* NRRL, strain 707. 1943. Thom strain 5117.
- Penicillium jenseni Zaleski  
10456\* NRRL, strain 909. 1948. Thom strain 5010.10. CBS.
- Penicillium kapuscinskii Zaleski: See also *P. ochrochloron*  
10457\* NRRL, strain 2147. 1948. CBS.
- Penicillium lanosocoeruleum Thom  
10459\* NRRL, strain 888. 1948. Thom strain 2543a.
- Penicillium lanosogriseum Thom  
10460\* NRRL, strain 894. 1948. Thom strain 2746.2a.
- Penicillium lanosoviride Thom  
10461\* NRRL, strain 879. 1948. Thom strain 5034.12.
- Penicillium lanosum Westling  
10458\* NRRL, strain 2009. 1948. CBS.
- Penicillium lapidosum Raper and Fennell  
10462\* NRRL, strain 718. 1948. E.J. Cameron, NCA.
- Penicillium lavendulum Raper and Fennell  
10463\* NRRL, strain 2146. 1948. Mycologia, 1948, 40, 530.
- Penicillium levitum Raper and Fennell  
10464\* NRRL, strain 705. Thom strain 5521. Mycologia, 1948, 40,  
511.
- Penicillium lilacinum Thom  
7748 L.S. Stuart, USDA. 1940. "White mold" of leather.
- 10114\* C. Thom, strain 8, USDA. 1946. NRRL strain 895.
- Penicillium lividum Westling  
10102 C. Thom, strain 2697, USDA. 1946. NRRL strain 754.
- Penicillium luteum Zukal: See also *P. vermiculatum*  
10125 C. Thom, strain B368, USDA. 1946. NRRL strain 1015.
- 10465 NRRL, strain 2102. CBS.
- 10466 NRRL, strain 1010. 1948. Thom strain 5357.208. G. R.  
Bisby, Univ. of Manitoba.
- Penicillium martensii Biourge  
10123 C. Thom, strain 5740.1, USDA. 1946. NRRL strain 953.
- 10467 NRRL, strain 2027. 1948. CBS.
- Penicillium megalosporum Orpurt and Fennell  
12322\* Dorothy I. Fennell, strain 6879, QMRDC. 1955. NRRL  
strain 2232. Mycologia, 1955, 47, 233.
- Penicillium meleagrinum Biourge  
10468 NRRL, strain 836. 1948. Thom strain 5034.53.



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- Penicillium melinii Thom  
 10136 C. Thom, strain 5692.8, USDA. 1946. NRRL strain 847.  
 10469\* NRRL, strain 2041. 1948. CBS.
- Penicillium miczynskii Zaleski  
 10470\* NRRL, strain 1077. 1948. CBS.
- Penicillium multicolor Grigorieva-Manoilova and Poradielova  
 10471 NRRL, strain 2058. 1948.
- Penicillium nalgiovensis Laxa  
 10472\* NRRL, strain 911. 1948. Thom strain 5337.2. Ripening of Ellischauer cheese, Bohemia.
- Penicillium namyslowskii Zaleski  
 11127 NRRL, strain 1070. 1952. CBS. Thom strain 5010.16.
- Penicillium nigricans Bainier ex Thom  
 9439 (Penicillium janczewskii) P. W. Brian, strain 250. Butterwick Res. Lab., Welwyn, England. Produces griseofulvin.  
 10115\* C. Thom, strain 4640.448, USDA. 1946. NRRL strain 915.
- Penicillium notatum Westling  
 9178 NRRL, strain 1249.B21. 1943. E. R. Squibb and Sons, New Brunswick, N. J. Derivative of Fleming strain. Production of penicillin in surface culture.  
 9179 NRRL, strain 832. 1943. Thom strain B69. Prototype strain for penicillin production in submerged culture.  
 9478 NRRL, strain 824. Thom strain 144.5112.1. Original penicillin strain of Alexander Fleming, 1928.  
 9479 NRRL, strain 1950. 1944. Production of penicillin in submerged culture.  
 10108\* C. Thom, strain 2541, USDA. 1946. NRRL strain 821.  
 11625 NRRL, strain 1978B2. 1953.
- Penicillium novae-zeelandiae van Beyma  
 10473\* NRRL, strain 2128. 1948. CBS.
- Penicillium ochraceum Bainier ex Thom  
 10112 C. Thom, strain 4424A, USDA. 1946. NRRL strain 869.  
 10474 NRRL, strain 871. 1948. Thom strain B450.
- Penicillium ochrochloron Biourge  
 9112 (also 9824) (P. kapuscinskii and Penicillium sp.) G. A. Greathouse, strain 1336.2, USDA. 1945. NRRL strain 744; QMRDC 477. Copper tolerant. Military specifications for fungus resistance testing.
- Penicillium olivinoviride Biourge  
 10475\* NRRL, strain 2028. 1948. CBS.
- Penicillium oxalicum Currie and Thom  
 10476 NRRL, strain 790. 1948. Thom strain 5427.
- Penicillium pallidum G. Smith  
 10478\* NRRL, strain 2037. 1948. G. Smith, strain 76, London School Hyg. and Trop. Med.
- Penicillium parvum Raper and Fennell  
 10479\* NRRL, strain 2095. 1948. Mycologia, 1948, 40, 508.
- Penicillium patulum Bainier  
 9260 NRRL, strain 994. 1943. Thom strain 4640.454.  
 10120 (P. urticae) C. Thom, strain 4640.455, USDA. 1946. NRRL strain 989.

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### Penicillium paxilli Bainier

10480 NRRL, strain 2008. 1948.

### Penicillium phoeniceum van Beyma

10481\* NRRL, strain 2070. 1948. CBS.

### Penicillium piceum Raper and Fennell

10519\* NRRL, strain 1051. 1948. Mycologia, 1948, 40, 533.

### Penicillium piscarium Westling

9052 NRRL, strain 1076. 1943. Thom strain 4733.97.

10482\* NRRL, strain 1075. 1948. Thom strain 2549.

12109 NRRL, strain 2022. 1955. P.B. Marsh, strain 15.1, USDA; QMRDC 471. Copper- and mercury-tolerant.

### Penicillium psittacinum Thom

10116\* C. Thom, strain 4733.12, USDA. NRRL strain 932.

### Penicillium puberulum Bainier

8508 NRRL, strain 845. 1942. Thom strain 5479; G. Smith strain Ad-31.

8732 NRRL, strain 1889. 1942. Raistrick strain Ad-113.

10483 NRRL, strain 2040. 1948. CBS. Production of penicillic and puberulic acids.

### Penicillium purpurogenum Stoll

9777 C. Thom, strain 4279C, USDA. 1945. NRRL strain 1061.

10064 C. Thom, strain 5694.11, USDA. 1946. NRRL strain 1059.

### Penicillium purpurogenum Stoll var. rubrisclerotium Thom

10486 NRRL, strain 1066. 1948. Thom strain 5735.7.

### Penicillium purpurescens (Sopp) Biourge

10485\* NRRL, strain 720. 1948. Thom strain 5297.144. G.R. Bisby. Univ. of Manitoba.

### Penicillium raciborskii Zaleski

10488\* NRRL, strain 2150. 1948. CBS.

### Penicillium raistrickii G. Smith

10490\* NRRL, strain 2039. 1948. G. Smith strain 100.

### Penicillium ramusculum Chaves-Batista and Maia

12292\* A. Chaves-Batista, strain 478, Univ. of Recife, Brazil. 1955.

### Penicillium resticulosum Birkinshaw et al.

10489\* NRRL, strain 2021. 1948. G. Smith strain P-47.

### Penicillium restrictum Gilman and Abbott

11257 NRRL, strain 1748. 1952.

### Penicillium rolfsii Thom

10491\* NRRL, strain 1078. 1948. Thom strain 32.

### Penicillium roqueforti Thom

6987, 6988 and 6989 W.T. Johnson, strains Danish, Hansen and Johnson, USDA. 1938.

9295 NRRL, strain 858. 1944. Thom strain B-150.

10110\* C. Thom, strain 18, USDA. 1946. NRRL strain 849. From French roquefort cheese.

### Penicillium roseo-purpureum Dierckx

10101 C. Thom, strain 5112.2, USDA. NRRL strain 734.

10492\* NRRL, strain 2064. 1948. CBS.

### Penicillium roseum: See Gliocladium roseum

### Penicillium rotundum Raper and Fennell

10493\* NRRL, strain 2107. 1948. Mycologia, 1948, 40, 518.

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- Penicillium rubrum Stoll  
10520 NRRL, strain 1062. 1948. Thom strain 5103.
- Penicillium rugulosum Thom  
10128\* C. Thom, strain 46, USDA. 1946. NRRL strain 1045.
- Penicillium sclerotiorum van Beyma  
10494\* NRRL, strain 2074. 1948. CBS.
- Penicillium simplicissimum (Oudemans) Thom  
10495 NRRL, strain 902. 1948. E.M. Laughton, South Africa.
- Penicillium solitum Westling  
9923\* NRRL, strain 937. 1948. Thom strain 2546.
- Penicillium soppi Zaleski  
10496\* NRRL, strain 2023. CBS.
- Penicillium spiculisporum Lehman  
10497 NRRL, strain 1028. 1948. Thom strain 5584.166.
- Penicillium spinulosum Thom  
9123 NRRL, strain 724. 1943. Thom strain 5711.  
10498 NRRL, strain 1750. 1948. Derived from type strain, Thom 45.
- Penicillium steckii Zaleski  
10499 NRRL, strain 2140. 1948.
- Penicillium stipitatum Thom ex Emmons  
10500\* NRRL, strain 1006. 1948. C.W. Emmons.
- Penicillium stoloniferum Thom  
10111\* C. Thom, strain 27, USDA. 1946. NRRL strain 859.
- Penicillium striatum Raper and Fennell  
10501\* NRRL, strain 717. 1948. C.C. Williams, NCA. Mycologia, 1948, 40, 521.
- Penicillium sublateritium Biourge  
10502\* NRRL, strain 2071. 1948. CBS.
- Penicillium tardum Thom  
10503 NRRL, strain 1073. 1948. Thom strain 4640.444.
- Penicillium terlikowskii Zaleski  
9438 P.W. Brian, strain 241, Butterwick Res. Lab., Welwyn, England. 1947. NRRL strain 1073. Produces gliotoxin.
- Penicillium terrestre Jensen  
10122 C. Thom, strain 5034.8, USDA. 1946. NRRL strain 933.  
10505 NRRL, strain 934. 1948. Thom strain 5042.135.
- Penicillium thomii Maire  
1107 C. Thom, strain 5534.2, USDA. 1946. NRRL strain 703.  
10506 NRRL, strain 1640. 1948. D.H. Linder, Harvard Univ.
- Penicillium trzebinskii Zaleski  
10507\* NRRL, strain 731. 1948. CBS. Thom strain 5010.27.
- Penicillium turbatum Westling  
9782\* NRRL, strain 757. 1945. Thom strain 2545.
- Penicillium urticae Bainier: See P. patulum
- Penicillium variabile Sopp  
10508 NRRL, strain 1048. 1948.
- Penicillium varians G. Smith  
10509\* NRRL, strain 2096. 1948. G. Smith, strain 91.
- Penicillium velutinum van Beyma  
10510\* NRRL, strain 2069. 1948. CBS.

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### Penicillium vermiculatum Dangeard

- 9776 P.B. Marsh, strain 1336.1, USDA. 1945. NRRL strain 2315; QMRDC 464. Military specifications for fungus resistance tests. Received as *P. luteum*.

10512 NRRL, strain 1019. 1948. Thom strain 5578.67.

### Penicillium verruculosum Peyronel

10513 NRRL, strain 1050. 1948. Thom strain 5179.3.

### Penicillium vinaceum Gilman and Abbott

10514\* NRRL, strain 739. 1948. Thom strain 4894.15.

### Penicillium viridicatum Westling

10117 C. Thom, strain 3028, USDA. 1946. NRRL strain 962.

10515 NRRL, strain 963. 1948. Thom strain 5740.2.

### Penicillium waksmani Zaleski

10516\* NRRL, strain 777. 1948. Thom strain 5010.36. CBS.

### Penicillium wortmannii Klöcker

10236 W.W. Diehl, USDA. 1947.

10517 NRRL, strain 1017. Thom strain 4733.126.1.

### Penicillium spp.

9112 G.A. Greathouse, strain 1336.2, USDA. See *P. ochrochloron*.

11598 R.W. Thoma, strain M 4202, E.R. Squibb and Sons, New Brunswick, N.J. U.S. Patent 2,753,290.

12667 P.F. Klens, strain 607, Nuodex Products Co., Elizabeth, N.J. 1956. Fungus resistance tests on textiles.

### Periconia circinata (Mangin) Saccardo

9354 R.W. Leukel, USDA. 1947. From "milo blight" of sorghum.

### Pericystis apis: See *Ascosphaera apis*

### Pestalotiopsis guepini (Desmazières) Steyaert

11543 F.A. Weiss, ATCC. 1953.

### Pestalotiopsis royenae (Guba) Steyaert

11816 Chas. Pfizer and Co., Inc., Brooklyn, N.Y. 1954. QMRDC strain 531.

### Pestalotiopsis westerdijkii Steyaert

10085 (*Pestalotia palmarum*) B.B. Mundkur, strain GC 244, Agric. Res. Inst., New Delhi, India.

11763 QMRDC, strain 381. 1954. Also known as strain Aust. and SN8. From canvas, New Guinea.

### Pestalotiopsis sp.

11817 Chas. Pfizer and Co. 1954. QMRDC 795. From canvas, New Guinea.

### Pezizella lythri (Desmazières) Shear and Dodge

6492 (*Hainesia lythri*) J.A. Stevenson, strain 1906, USDA. 1938.

C.L. Shear, strain 1906. From cranberry.

### Phialophora jeanselmei (Langeron) Emmons

10224 C.W. Emmons, strain 7824, NIH. 1947. From clinical mycetoma.

### Phialophora melinii (Nannfeldt) Conant

6696 (*Cadophora melinii*) J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.

### Phialophora pedrosoi (Brumpt) Emmons

9473 A.E. de Arêa Leão, strain 1885, IOC. 1947. From clinical chromoblastomycosis.

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### Phialophora pedrosoi (Continued)

9941 and 10221 C.W. Emmons, NIH. 1947.

### Phialophora verrucosa Medlar

4806 (*Cadophora americana*) F.D. Weidman, strain 2261, Univ. of Pennsylvania. 1932. From clinical blastomycosis.

8687 NRRL, strain 1631. 1942.

10223 C.W. Emmons, strain 8723, NIH. M. Moore, Missouri Bot. Gard.

### Pholiota adiposa Fries

9393 J.W. Sinden, Overholts strain 24736, Pennsylvania State Coll. 1947.

### Pholiota dura Bolton ex Fries

6768 J.A. Stevenson, USDA. 1938. R. Sprague, from wheat.

### Phoma betae Frank

6504 J.A. Stevenson, strain 5352. USDA. 1938.

### Phoma destructiva Plowright

9641 L. McCulloch, strain 31, USDA. 1944.

### Phoma glomerata (Corda) Wollenweber and Hoch

6735 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.

### Phoma pigmentivora Massee (= *Aposphaeria violacea* Bertel)

12569 QMRDC, strain 502. 1956. R.K.S. Wood, Roy. Coll. Sci., London. Fungus resistance testing of white lead paint.

### Phoma tuberosa Melhus et al.

11141 J.A. Stevenson, USDA. 1952.

### Phomopsis citri Fawcett (= *Diaporthe citri* Wolf)

9054 E. West, Univ. of Florida. 1943. Stem-end rot of orange.

### Phomopsis gardeniae Hansen and Barrett

12110 W.F. Jeffers, Univ. of Maryland. 1955. Stem canker of gardenia.

### Phomopsis viticola (Reddick) Goidanich

12685 CBS. 1956. Dieback of grape.

### Phomopsis sp.

12098 F.A. Weiss, ATCC. 1955. Dieback of azalea.

### Phycomyces blakesleeana Burgeff

6200 A.F. Blakeslee, CIW. 1937.

8743a (+) and 8743b (-) NRRL, strains 1554 and 1555. 1942. L. H. Leonian, West Virginia Univ.

### Phycomyces nitens (Kunze) van Tieghem and le Monnier

9984 NRRL, strain 1468. 1946.

### Phyllosticta richardiae Brooks

11352 CBS. 1952.

### Phyllosticta sorghina Saccardo

12115 CBS. 1955.

### Physalospora ilicis (Schleicher) Saccardo

11368 (*Phyllosticta ilicicola*) C. Driver, strain P-22-C, Louisiana State Univ. 1952.

### Physalospora obtusa (Schweinitz) Cooke

11929 (*Physalospora malorum*) W.F. Jeffers. Univ. of Maryland. 1954.

### Physalospora rhodina (Berkeley and Curtis) Cooke

10936 (*Diplodia theobromae*) W.F. Jeffers, Univ. of Maryland. 1954.



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### Physalospora tucumanensis Spegazzini

- 12088 (Colletotrichum falcatum) B.A. Bourne, U.S. Sugar Corp., Clewiston Fla. 1955. Susceptible to antibiotic action of *Candida intermedia*.

### Phytophthora cactorum (Lebert and Cohn) Schroeter

- 6419 H.S. Fawcett, strain 2006, Univ. of California, Riverside. 1938. From lemon, Argentina.  
10091 H.S. Fawcett, strain 1933. 1946. CBS. From lilac, Netherlands.

### Phytophthora cinnamomi Rands

- 10922 W.F. Jeffers, Univ. of Maryland. 1951. From roots of *Viburnum*.  
11928 W.F. Jeffers. 1954. G.A. Zentmyer. From avocado root, California.

### Phytophthora drechsleri Tucker

- 10923 W.F. Jeffers, Univ. of Maryland. 1951.

### Phytophthora erythroseptica Pethybridge

- 10924 W.F. Jeffers, Univ. of Maryland. Muriel J. O'Brien, USDA. From potatoes, Idaho.

### Phytophthora fragariae Hickman

- 10394 CBS. 1948.  
11106 C.J. Hickman, strain 106-A (Race 1), Univ. of Birmingham, England. 1951. From strawberry red stele.  
11107, 11108, 11109 and 11110 C.J. Hickman, strains R-4 (Race 2), R 11 (Race 3), R 13 (Race 4) and N 2 (Race 5). 1951.  
11374 W.F. Jeffers, strain S, Univ. of Maryland. 1952. Pathogenic to Aberdeen variety of strawberry.

### Phytophthora hibernalis Carne

- 11300 Mathilde Bensaude, strain B, Univ. of California, Berkeley. 1952. From orange fruit, Portugal.

### Phytophthora infestans (Montagne) de Bary

- 9901 and 9976 Lillian C. Cash, strains 182 and Green Mountain, USDA. 1946.  
9978, 10890 and 10891 Lillian C. Cash, strains 544, 201 and 583, USDA. 1951.  
11409 and 11410 M.E. Gallegly, strains M-7 (Race 1) and M-13 (Race 3), West Virginia Univ. 1953. From tomato, W. Va.  
12183 to 12191 M.E. Gallegly, West Virginia Univ. 1955. Strains designated by international agreement among potato breeders as follows: WV-1 (Potato race 0), G-C (Potato race 1), S-g (Potato race 1, 2), WV-5 (Potato race 1, 4), BC (Potato race 2, 4), N9 (Potato race 2, 3, 4), C 1234 (Potato race 1, 2, 3, 4), F<sub>3</sub> (Tomato race 1), 2T (Tomato race 1B).  
12195 to 12199 M.E. Gallegly. Strains designated by international agreement among potato breeders as follows: C 123(S) (Potato race 1, 2, 3), 34.4 (Potato race 1, 2, 4), S-F (Potato race 1, 3, 4), 63 (Potato race 3), B (Potato race 4).

### Phytophthora lateralis Tucker and Milbrath

- 11261 CBS, 1952. J.A. Milbrath, Oregon State Coll. From root rot of *Chamaecyparis*.

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- Phytophthora megasperma Drechsler  
12316 CBS. 1955. E.M. Blackwell, CMI.
- Phytophthora palmivora Butler  
12577 F.L. Wellman, USDA, Turrialba, Costa Rica. 1956. From cacao.
- Phytophthora parasitica Dastur  
10925 W.F. Jeffers, Univ. of Maryland. 1951.
- Phytophthora parasitica var. nicotianae Tucker  
10926 W.F. Jeffers, Univ. of Maryland. 1951. E.E. Clayton, USDA.
- Phytophthora phaseoli Thaxter  
10927 W.F. Jeffers, Univ. of Maryland. 1951. R.A. Hyre, USDA.
- Phytophthora syringae Klebahn  
11301 Mathilde Bensaude, Univ. of California. 1952. From lemon, Portugal.  
11302 Mathilde Bensaude, Strain H. 1952. From lemon, Portugal.
- Phytophthora sp.  
10928 W.F. Jeffers, Univ. of Maryland. 1951. F.A. Weiss, USDA. From root rot of Saintpaulia.
- Pichia farinosa (Lindner) Hansen  
2252 F.W. Tanner, Univ. of Illinois. 1935.
- Pichia fermentans Lodder  
9768 (*Pichia kluyveri*) P.R. Burkholder, strain 15, Yale Univ. 1945.  
10651 NRRL, strain Y-1619. 1950. CBS.
- Pichia membranaefaciens Hansen (*Candida mycoderma*)  
2085 (*Endomyces chodati*) R. Chodat, Univ. of Geneva, Switzerland. 1928.  
2254 F.W. Tanner, Univ. of Illinois. 1925. NRRL strain Y-847.  
2605 (*Zygopichia chevalieri*) F.W. Tanner. 1925. NRRL strain Y-221.  
10649 NRRL, strain Y-368. 1950.  
10650 NRRL, strain Y-1627. 1950. CBS.  
10652 (*Pichia mandshurica*) NRRL, strain Y-1628. 1953. CBS.  
10653 (*Pichia neerlandica*) NRRL, strain Y-1620. 1953. CBS.
- Pilobolus crystallinus (Wiggers) Tode  
11353 CBS. 1952.
- Pilobolus kleinii van Tieghem  
11505 A.C. Dornbush, strain X-93, Lederle Labs., Pearl River, N.Y. 1953. Requires the growth factor, coprogen.
- Piptocephalis corymbifera Vuillemin  
11112 CBS. 1951. Growing on Mucor.  
12665 NRRL, strain 2385. 1956.
- Piptocephalis digitata Dobbs  
12664 NRRL, strain 1535. 1956.
- Piptocephalis repens van Tieghem  
11260 CBS. 1952. Growing on Mucor.
- Piricularia oryzae Briosi and Cavara  
11802, 11803, 11804 and 11805 K. Kominami, strains 1138 (P3), 1139 (P4), 1140 (P5) and 1141 (P6), Nagao Inst., Japan. 1951.  
11154 CBS, strain Savulescu. 1951.

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- Pityrosporum ovale (Bizzozero) Castellani and Chalmers  
12078 Shuh-wei Hwang, ATCC. 1955.
- Pleospora diaporthoides Ellis and Everhart  
9553 E.S. Luttrell, strain 58, Georgia Agric. Expt. Sta. 1944.
- Pleospora herbarum (Fries) Rabenhorst  
11681 (*Stemphylium botryosum*) F.A. Weiss, ATCC. 1953.
- Pleospora infectoria Fuckel  
12054 W.F. Jeffers, Univ. of Maryland. 1954. Chas. Pfizer Co., Inc., Brooklyn, N.Y., strain W-1948.
- Pleospora lycopersici El. et Em. Marchal  
10737 CBS. 1949.
- Pleospora phaeocomes (Rebentisch) Winter  
12418 J.H. Graham, strain 432 B1, USDA, State Coll., Pa. 1955.  
Leaf spot of *Dactylis glomerata*.
- Pleurotus ostreatus (Jacquin) Fries  
9415, 9424 and 9427 J.W. Sinden, Overholts strains 24739, 24567-S and 24737, Pennsylvania State Coll. 1947.
- Pleurotus passeckerianus Pilát  
9416 J.W. Sinden, Overholts strain 24738, Pennsylvania State Coll. 1947.
- Podospora pauciseta (Cesati) Trevisan  
11930 (*Pleuraea anserina*) W.F. Jeffers, Univ. of Maryland. 1954.  
12487a (+) and 12487b (-) CBS. 1956.
- Polyporus abietinus Dickson ex Fries  
9391 J.W. Sinden, Overholts strain 24731-R, Pennsylvania State Coll. 1947.
- Polyporus amorphus Fries  
12232 Frances F. Lombard, strain L-3291-R, USDA. 1955.
- Polyporus anceps Peck  
9352 R.W. Davidson, strain F.P. 71825-S, USDA. 1947. C. M. Christensen, Univ. of Minnesota.
- Polyporus betulinus (Bulliard) Fries  
9386 J.W. Sinden, Overholts strain 24858, Pennsylvania State Coll. 1947.
- Polyporus brumalis Persoon ex Fries  
9385 J.W. Sinden, Overholts strain 24800, Pennsylvania State Coll. 1947.
- Polyporus cinnabarinus (Jacquin) Fries  
11934 W.F. Jeffers, Univ. of Maryland. 1954. Chas. Pfizer and Co., Inc., strain 57071-S.
- Polyporus circinatus Fries  
9389 J.W. Sinden, Overholts strain 24437, Pennsylvania State Coll. 1947.
- Polyporus compactus Overholts  
9385 J.W. Sinden, Overholts strain 24785-R, Pennsylvania State Coll. 1947.
- Polyporus distortus (Schweinitz) Fries  
9382 J.W. Sinden, Overholts strain 24724-S, Pennsylvania State Coll. 1947.
- Polyporus frondosus Fries  
11936 W.F. Jeffers, Univ. of Maryland. 1954.

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### Polyporus fumosus (Persoon) Fries

- 9384 J. W. Sinden, Overholts strain 24761-R, Pennsylvania State Coll. 1947.

### Polyporus hirsutus (Wulfen) Fries

- 9377 J. W. Sinden, Overholts strain 24710-R, Pennsylvania State Coll. 1947.

### Polyporus lucidus Fries

- 9383 J. W. Sinden, Overholts strain 24778-S, Pennsylvania State Coll. 1947.  
9422 J. W. Sinden, Overholts strain 25665-S, Pennsylvania State Coll. 1947.

### Polyporus palustris Berkeley and Curtis

- 12849 Frances F. Lombard, USDA. 1957.

### Polyporus rutilans Persoon ex Fries

- 10967 Frances F. Lombard, strain 2287, USDA. 1951.

### Polyporus sanguineus Linnaeus ex Fries

- 10242 W. W. Diehl, USDA. 1947.

### Polyporus schweinitzii Fries

- 9392 J. W. Sinden, Overholts strain 24675-S, Pennsylvania State Coll. 1947.  
10013 R. W. Davidson, strain 71119, USDA. 1946.

### Polyporus spraguei Berkeley and Curtis

- 9381 J. W. Sinden, Overholts strain 24658-S, Pennsylvania State Coll. 1947.

### Polyporus sulphureus (Bulliard) Fries

- 9387 J. W. Sinden, Overholts strain 24681-S, Pennsylvania State Coll. 1947.  
11411 Frances F. Lombard, strain 48603, USDA. Conidial culture.

### Polyporus tulipiferus (Schweinitz) Overholts

- 9378 and 9426 J. W. Sinden, Overholts strains 24779-R and 24740-R, Pennsylvania State Coll. 1947.  
11245 Frances F. Lombard, USDA. 1952. Madison strain 517. Used in wood preservation tests.

### Polyporus versicolor Linnaeus ex Fries

- 11235 Frances F. Lombard, strain R-105, USDA. 1952.  
12679 Frances F. Lombard, strain F.P. 72074, USDA. 1956. Madison strain 697. Wood preservation tests.

### Polyporus volvatus Peck

- 12212 W. F. Jeffers, Univ. of Maryland. 1955.

### Polyporus zonalis Berkeley

- 10089 R. W. Davidson, strain 55571, USDA. 1946.

### Poria ambigua Bresadola

- 9408 J. W. Sinden, Overholts strain 24674-R, Pennsylvania State Coll. 1947.

### Poria asiatica (Pilát) Overholts

- 12615 Frances F. Lombard, strain L-3453-Sp, USDA. 1956.

### Poria incrassata (Berkeley and Curtis) Burt

- 7770 R. W. Davidson, USDA. 1940.  
11236 Frances F. Lombard, USDA. 1952. Madison strain 563. Wood preservation tests.

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## Poria inermis Ellis and Everhart

- 9412 J.W. Sinden, Overholts strain 24798, Pennsylvania State Coll. 1947.

## Poria luteofibrata Baxter

- 9411 J.W. Sinden, Overholts strain 24679-R, Pennsylvania State Coll. 1947.  
9958 R.W. Davidson, strain 2996, USDA. 1946.

## Poria monticola Murrill

- 9891 R.W. Davidson, strain 575, USDA. 1945.  
11538 Frances F. Lombard, USDA. 1953. Madison strain 698.  
Wood preservation tests.

## Poria nigrescens Bresadola

- 11818 Frances F. Lombard, strain Lowe 3354, USDA. 1954.  
12680 Frances F. Lombard, USDA. 1956. Madison strain 4963.

## Poria prunicola (Murrill) Saccardo and Trotter

- 11089 K. Kominami, strain 3075, Nagao Inst., Japan. 1951.

## Poria radiculosa Peck

- 12681 Frances F. Lombard, USDA. 1956. Madison strain 5096-29.  
Wood preservation tests.

## Poria sequoiae Bonar

- 11819 Frances F. Lombard, strain 4948, USDA. 1954.

## Poria subacida (Peck) Saccardo

- 11087 K. Kominami, Nagao Inst., Japan. 1951.  
12241 Frances F. Lombard, strain Bud. 1077, USDA. 1955.

## Poria vaillantii (Fries) Cooke

- 11044 and 11045 Frances F. Lombard, strains Find. 14 and FP.  
90877-R, USDA. 1951.  
11074 Museum of Natural History, Paris, strain 992. 1951.

## Poria vaporaria Persoon ex Fries

- 11088 K. Kominami, Nagao Inst., Japan. 1951.

## Poria versipora (Persoon) Romell

- 9407 J.W. Sinden, Overholts strain 24848-R, Pennsylvania State Coll. 1947.

## Poria xantha (Fries) Cooke

- 11086 K. Kominami, Nagao Inst., Japan. 1951.

## Poria zameriensis (Pilát) Overholts

- 9409 J.W. Sinden, Overholts strain 24765-R, Pennsylvania State Coll. 1947.

## Psalliota campestris Linnaeus ex Fries

- 9672 E.B. Lambert, USDA. 1945.  
10892 and 10893 E.B. Lambert, strains 347 and 348, USDA. 1951.  
Cultivated form.

## Pseudoeurotium multisporum (Saito and Minoura) Stolk

- 10990 (Amixopsis multispora) K. Kominami, strain 2003, Nagao Inst., Japan. 1951.  
11713 K. Sato, strain 5481, IFO. 1954.

## Pseudogymnoascus roseus Raillo

- 12262 L.W. Durrell, Colorado A. and M. Coll. 1955.

## Pseudopeziza medicaginis (Libert) Saccardo

- 12105 F.R. Jones, strain 602, Univ. of Wisconsin. 1955.



## FUNGI AND YEASTS

### Pullularia fermentans Wynne and Gott

12535\* E.S. Wynne, Univ. of Texas. 1956. From granuloma of lymph node. J. Gen. Microbiol., 1956, 14, 512. Also the following strains, formally described as varieties:

12536 Var. fusca (Browne) Wynne and Gott.

12537 Var. leaoi Wynne and Gott.

12538 Var. melinii Wynne and Gott.

12539 Var. schoenii Wynne and Gott.

12734 Var. benedekii Wynne and Gott.

### Pullularia pullulans (de Bary and Loew) Berkhout

9348 and 9349 P.B. Marsh, strains Weber F 44 and J 364, USDA. 1947.

11942 (*Candida malicola*) R.H. Wallace, McGill Univ., Montreal. 1954.

### Pycnidophora dispersa Clum

12436\* F.M. Clum, Michigan State Univ. 1956. Mycologia, 1955, 47, 899.

### Pyrenochaeta decipiens Marchal

12264 L.W. Durrell, Colorado A. and M. Coll. 1955.

### Pyrenochaeta terrestris (Hansen) Gorenz et al.

11321 R.H. Larson, Univ. of Wisconsin. 1952.

### Pythium aphanidermatum (Edson) Fitzpatrick

12192 J.T. Middleton, Univ. of California, Riverside. 1955.

### Pythium aristosporum Vanterpool

11101 CBS. 1951. T.C. Vanterpool.

### Pythium arrhenomanes Drechsler

12531 A.L. Hooker, Univ. of Wisconsin. 1956.

### Pythium catenulatum Matthews

10950 J.N. Couch, Univ. of North Carolina. 1951.

### Pythium debaryanum Hesse

9998 C. Drechsler, strain 843, USDA. 1946.

10393 CBS. 1948.

### Pythium deliense Meurs

11433 CBS. 1953.

### Pythium graminicola Subramaniam

10392 CBS. 1948.

### Pythium irregulare Buisman

10951 J.N. Couch, Univ. of North Carolina. 1951.

11120 CBS. 1952.

### Pythium mamillatum Meurs

11121 CBS. 1952.

### Pythium paroecandrum Drechsler

12532 A.L. Hooker, Univ. of Wisconsin. 1956.

### Pythium rostratum Butler

12533 A.L. Hooker, Univ. of Wisconsin. 1956.

### Pythium splendens Braun

12534 A.L. Hooker, Univ. of Wisconsin. 1956.

### Pythium ultimum Trow

11123 CBS. 1952.

### Pythium undulatum Petersen

10952 J.N. Couch, Univ. of North Carolina. 1951.

## FUNGI AND YEASTS

### Pythium vexans de Bary

12194 CBS. 1955.

### Rhizoctonia bataticola: See Macrophomina phaseoli

### Rhizoctonia carotae Rader

10866\* W.E. Rader, Shell Oil Co., Modesto, Calif. 1948.

### Rhizoctonia crocorum (Persoon) DC. (= Helicobasidium purpureum Patouillard)

11070 CBS. 1952.

### Rhizoctonia lanuginosa Bernard

11575 CBS. 1954.

### Rhizoctonia microsclerotia Matz

10187 J.E. Kotila, strain R-177, USDA. 1946. From rice, India.

### Rhizoctonia solani Kühn (= Pellicularia filamentosa Rogers)

6221 Thelma B. Post, USDA. 1937.

10154 J.E. Kotila, strain R-40, USDA. 1946. From alfalfa.

10157 J.E. Kotila, strain R-398, USDA. 1946. From alfalfa.

10159 J.E. Kotila, strain R-276, USDA. 1946. From cabbage.

10163 J.E. Kotila, strain R-93, USDA. 1946. From Melilotus.

10166 J.E. Kotila, strain R-409, USDA. 1946. From Koksaghis.

10170 J.E. Kotila, strain R-216, USDA. 1946. From sugar beet.  
J. Agric. Res., 1947, 74, 289.

10176 and 10177 J.E. Kotila, strains R-255 and R-355, USDA. 1946.  
From sugar beet.

10182 and 10183 J.E. Kotila, strains R-72 and R-190, USDA. 1946.  
From potato.

10184, 10186 and 10192 J.E. Kotila, strains R-198, R-372 and R-401,  
USDA. 1946. From sugar beet, potato, and tobacco, respec-  
tively.

### Rhizopus arrhizus Fischer

11145 H.C. Murray, strain RH 176, Upjohn Co., Kalamazoo, Mich.  
1952.

### Rhizopus chinensis Saito

1227b (-) A.F. Blakeslee, CIW. 1938.

### Rhizopus circinans van Tieghem

1225 (R. reflexus) A.F. Blakeslee, CIW. 1938.

### Rhizopus cohnii Berlese and de Toni

8996 and 8999 V.M. Cutter, Jr., strains 143 and 148, Cornell Univ.  
1942.

### Rhizopus delemar and R. japonicus: See R. oryzae

### Rhizopus kazanensis Hanzawa

8998 V.M. Cutter, Jr., strain 147, Cornell Univ. 1942.

### Rhizopus nigricans: See R. stolonifer

### Rhizopus oryzae Went and Prinsen-Geerligs

4858 (Rhizopus delemar) A.J. Kluyver, Delft, Netherlands. 1932.  
Production of pectinase.

8466 (Rhizopus japonicus) NCTC, strain 1905. 1942. Central Lab.,  
South Manchurian Railway. Manufacture of soya sauce.

8477 NRRL, strain 1528. 1942. Marie B. Morrow, Univ. of Texas.

9363 NRRL, strain 395. 1947. Production of lactic acid.

## FUNGI AND YEASTS

### Rhizopus oryzae (Continued)

- 9374 NRRL, strain 1472. 1947. Amylo process for starch conversion.  
 10260 NRRL, strain 1526. 1947. Amylo process for starch conversion.  
 11886 L. Ajello, CDC. 1954. From clinical meningitis.  
 11910 (*Rhizopus acidus*) K. Sato, strain 5404, IFO. 1954.  
 12732 NRRL, strain 1526. 1957. Production of fumaric acid.  
 12883 NRRL, strain 1891. 1957. Strain Boulard No. 5: Amylo process for starch conversion.

### Rhizopus pygmaeus Naoumoff

- 11559\* CBS. 1953.

### Rhizopus reflexus: See *R. circinans*.

### Rhizopus shanghaiensis Yamazaki

- 10329 NRRL, strain 1518. 1948.

### Rhizopus thermosus Yamamoto

- 11002 K. Kominami, strain 1207, Nagao Inst., Japan. 1951.

### Rhizopus tritici Saito

- 1230 A.F. Blakeslee, CIW. 1937.

### Rhizopus stolonifer (Ehrenberg ex Fries) Lind

- 6204 (*R. nigricans*) C. Thom, USDA. 1937.  
 6227a (+) and 6227b (-) A.F. Blakeslee, strains C-25A and C-25B, CIW. 1937.  
 10404 W.H. Weston, Harvard Univ. 1948. Strain Aust. 32, QMRDC 387. Military specifications for fungus resistance tests.

### Rhizopus sp.

- 12702 NRRL, strain 2005. 1956. Production of fumaric acid.

### Rhodotorula aurantiaca (Saito) Lodder

- 9536 W.J. Robbins, New York Botanical Garden. 1944. Assay of p-aminobenzoic acid and molecular thiamine. Science, 1944, 100, 85.  
 10655 (*Rhodotorula colostri*) NRRL, strain Y-1584. 1950. CBS.  
 10657 (*Rhodotorula longissima*) NRRL, strain Y-1588. 1950. CBS.

### Rhodotorula aurea: See *Cryptococcus laurentii*

### Rhodotorula flava (Saito) Lodder

- 10656\* NRRL, strain Y-1585. 1950.

### Rhodotorula glutinis (Fresenius) Harrison

- 2527\* F.W. Tanner, Univ. of Illinois. 1929. CBS.  
 4054 P. Redaelli, Univ. of Pavia, Italy. 1927. NRRL strain Y-842.  
 10788 (*Rhodotorula gracilis*) CBS. 1950.

### Rhodotorula glutinis var. rubescens (Saito) Lodder

- 6495 J.A. Stevenson, strain 1933, USDA. 1938. R. Scaramella.

### Rhodotorula minuta (Saito) Harrison

- 10658\* NRRL, strain Y-1589. 1953. CBS.

### Rhodotorula mucilaginosa (Jørgensen) Harrison

- 2503 F.W. Tanner, Univ. of Illinois. 1926. NRRL strain Y-168.  
 2510 (*R. mucilaginosa* var. *sanguinea*) F.W. Tanner. 1941. NRRL strain Y-174.  
 4056 (*Torulopsis blourgei*) P. Redaelli, Univ. of Pavia, Italy. 1927.  
 4557 (*Cryptococcus rubrorugosus*) A. Castellani, Ross Inst., London. 1929. NRRL strain Y-843.

## FUNGI AND YEASTS

### Rhodotorula mucilaginosa (Continued)

- 4558 (*Cryptococcus pararoseus*) A. Castellani. 1929. NRRL strain Y-844.

### Rhodotorula pallida Lodder

- 2776 NRRL, strain Y-21. 1953. CBS.

### Rhodotorula rubra (Demme) Lodder

- 9449 NRRL, strain Y-1592. 1948. CBS.  
9450 and 9451 NRRL, strains Y-1593 and Y-1594. 1948. CBS.  
Received as vars. *curvata* and *longa*, respectively.

### Rhynchosporium secalis (Oudemans) Davis

- 11610 K. Sato, strain 5290, IFO. 1953.

### Rosellinia necatrix (Hartig) Berlese

- 11806 H.E. Thomas, Univ. of California, Berkeley. 1954. From pear root.

### Saccharomyces acidifaciens (Nickerson) Lodder and Kreger-van Rij

- 2333 and 2602 (*Zygosaccharomyces mandshuricus*) F.W. Tanner, Univ. of Illinois. 1927. NRRL strains Y-125 and Y-54.  
8766\* W.J. Nickerson, Wheaton Coll., Norton, Mass. 1942. NRRL strain Y-1011.  
11486 NRRL, strain Y-1404. 1953. CBS.

### Saccharomyces bailii Lindner

- 8099 G. Knaysi, strain 651, Cornell Univ. 1941.

### Saccharomyces bayanus Saccardo

- 8741 NRRL, strain Y-966. 1942.

### Saccharomyces bisporus (Naganishi) Lodder and Kreger-van Rij

- 2607 (*Zygosaccharomyces bisporus*) F.W. Tanner, Univ. of Illinois. 1927. NRRL strain Y-223.  
10618 (*Debaryomyces disporus*) NRRL, strain Y-1447. 1949. CBS.

### Saccharomyces carlsbergensis Hansen

- 2345 F.W. Tanner, Univ. of Illinois. 1928. CBS. NRRL strain Y-132. Production of ergosterol.  
2700 F.W. Tanner. 1927. NCTC strain 903, NRRL Y-236. Froberg bottom yeast.  
9080 Hillman Hospital, Birmingham, Ala., strain 4228. 1943. Assay of vitamin B<sub>6</sub> and pantothenic acid.  
9373 V.H. Cheldelin, strain 1036, Oregon State Coll. 1947.  
10596 NRRL, strain Y-379. 1949.

### Saccharomyces cerevisiae Hansen

- 2338 F.W. Tanner, Univ. of Illinois. 1927. NCTC strain 467, NRRL Y-129.  
2341 (*S. ilicis*) F.W. Tanner. 1926. NCTC strain 1809, NRRL Y-35. Carlsberg Lab., from fruit of *Ilex*.  
2359 (*S. ellipsoideus* subsp. *fuliensis* var. *typica*) R. Chodat, strain 50, Univ. of Geneva, Switzerland. 1928. NRRL strain Y-44.  
2365 (*S. cerevisiae* subsp. *vetrozensis*) R. Chodat, strain 56. 1928. NRRL strain Y-138.  
2366 (*S. pastorianus* subsp. *arbignensis*) R. Chodat, strain 52. 1928. NRRL strain Y-139. Assay of Acti-dione.

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### Saccharomyces cerevisiae (Continued)

- 2373 F.W. Tanner, Univ. of Illinois. 1928. NRRL strain Y-144. Acid tolerant.
- 2375 (S. ellipsoideus subsp. montibensis) R. Chodat, strain 55. 1928. NRRL strain Y-145.
- 2704 F.W. Tanner. 1927. Type Saaz. NCTC strain 906, NRRL Y-239.
- 4110 F.A. McDermott, Eastern Alcohol Corp. 1927. Grain distillery yeast.
- 4111, 4124 and 4125 F.A. McDermott, Eastern Alcohol Corp. 1927. Molasses distillery yeasts.
- 4126 (S. anamensis) F.A. McDermott. 1927. CBS. Amylo process yeast; ferments at high temperature.
- 4132 F.A. McDermott. 1927. Molasses distillery yeast with high temperature optimum.
- 4134 (S. sake) F.A. McDermott. 1927. Japanese sake yeast.
- 7752 R.J. Williams, Univ. of Texas. 1940. Strain "G.M." (Gebrüder Mayer), NRRL strain Y-973. Assay of biotin, inositol, pantothenic acid and pyridoxine.
- 7754 R.J. Williams, strain F.B. (Fleischmann Bakers' yeast). 1940. NRRL strain Y-977. Assay of biotin.
- 7921 M. Wayman, Univ. of Toronto. 1941. Originally from Fleischmann yeast cake. Differentially ferments glucose and galactose.
- 9017 and 9018 Wallerstein Lab., New York, N.Y., strains 1B (Inst. Gärungsgewerbe) and 48B (Canadian Brewery). 1943. Ale yeasts.
- 9369, 9370 and 9371 V.H. Cheldelin, strains S C, 2504 and Lash-Miller, Oregon State Coll. 1947.
- 9763 NRRL, strain Y-567. 1945. PCI strain M50. Distillery yeast.
- 10274 and 10275 C.C. Lindegren, strains 2326 and 2333, Southern Illinois Univ. 1948.
- 11795 R.F. Light, strain 20.5, Fleischmann Lab., Stamford, Conn. 1954.
- 11909 (Debaryomyces mandshuricus) K. Sato, strain 0044, IFO. 1954.
- 12341 H.P. Klein, strain LK 2 G 12, Brandeis Univ. 1955. Fat synthesis.
- 12699 T.E. King, strain HI, Oregon State Coll. 1956.

### Saccharomyces cerevisiae var. ellipsoideus (Hansen) Dekker

- 560 and 561 Wallerstein Lab., New York, N.Y., strains 82 and 50. 1925. NRRL strains Y-635 and Y-629.
- 834 F.W. Tanner, Univ. of Illinois. 1926. Champagne yeast.
- 2355 (S. cerevisiae var. turbidans) F.W. Tanner, strain 2355. 1925.
- 2364 (S. cerevisiae subsp. orsati) R. Chodat, strain 54, Univ. of Geneva, Switzerland. 1928.
- 2701 F.W. Tanner. 1928. Johannesburg II yeast. NCTC strain 1806, NRRL Y-237.
- 4097 F.A. McDermott, Eastern Alcohol Corp. 1927. French champagne yeast.



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### Saccharomyces cerevisiae var. ellipsoideus (Continued)

- 4098 and 4105 F.A. McDermott. 1927. German white wine yeast and California wine yeast.
- 4108 NRRL, strain Y-633. 1954. Tokay wine yeast.
- 4113 and 4114 F.A. McDermott, Eastern Alcohol Corp. 1927. Ansmushausen and Laviero wine yeasts. NRRL strains Y-149 and Y-150.
- 4117, 4123 and 4127 F.A. McDermott. 1927. Menes and Burgundy wine yeasts, and "wild" yeast from American Concord grapes.
- 4921 F.W. Fabian, Michigan State Coll. 1934. French wine yeast.
- 6037 (*S. cerevisiae* var. *turbidans*) CBS. 1936.
- 7753 R.J. Williams, Univ. of Texas. 1940. "Old Process" yeast; assay of thiamine and inositol.
- 8255, 8256, 8257 and 8258 C.S. Pederson, strains 249 (Sauterne), 303 (Muscatel), 313 (Sauterne) and 331 (Malaga), New York Agric. Expt. Sta., Geneva, N.Y. 1941.
- 9841 NCTC, strain 6969 (Pasteur). 1945. Sauterne wine yeast.
- 9896 K. Dittmer, Univ. of Colorado. 1945. Strain Fleischmann 139. Assay of biotin.
- 10607 (*S. odessa*) NRRL, strain Y-1355. 1949.
- 10608 (*S. paradoxus*) NRRL, strain Y-1088. 1949.
- 10824 H.J. Bunker, Barclay Perkins and Co., London. 1950. NCTC strain 7040.
- 11777 NRRL, strain Y-1912. A.G. Lochhead. Rhenish wine yeast.

### Saccharomyces chevalieri Guilliermond

- 9804\* NCTC, strain 2054. 1945.
- 10604 (*S. mangini*) NRRL, strain Y-1546. 1949. CBS.

### Saccharomyces delbrueckii Lindner

- 10597 (*S. dairensis*) NRRL, strain Y-1353. 1949.
- 10612 (*S. unisporus*) NRRL, strain Y-1556. 1953.
- 10662 NRRL, strain Y-866. 1953.

### Saccharomyces delbrueckii var. mongolicus (Saito) Lodder and Kreger-van Rij.

- 9770 P.R. Burkholder, strain 259, Yale Univ. 1945.
- 10600 (*S. globosus*) NRRL, strain Y-409. 1949.
- 10686\* NRRL, strain Y-1602. 1953. CBS.

### Saccharomyces elongasporus Recca and Mrak

- 11503\* J.A. Recca, strain 78, Univ. of California, Davis. 1953. From concentrated orange juice. Food Technol., 1952, 6, 450.

### Saccharomyces exiguus Hansen (*Torulopsis holmii*)

- 10599 NRRL, strain Y-1538. 1954. CBS.

### Saccharomyces fermentati (Saito) Lodder and Kreger-van Rij (*Torulopsis colliculosa*)

- 2551\* F.W. Tanner, Univ. of Illinois. 1924. K. Saito, Central Lab. South Manchurian Railway. NRRL strain Y-856.

### Saccharomyces fragilis Jørgensen (*Candida pseudotropicalis*)

- 8582 and 8601 N.C. Laffer, strains 49 and 78 (Type E), Lederle Lab., Pearl River, N.Y. 1942. NRRL strains Y-1137 and Y-1156. Also numerous other Type E strains from the same source.

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### Saccharomyces fragilis (Continued)

- 8608 and 8616 N.C. Laffer, strains 85 and 93 (Type F). 1942.  
NRRL strains Y-1163 and Y-1171.
- 8635 Upjohn Co., Kalamazoo, Mich. 1954. W. Henneberg, strain 236. NRRL strain Y-1190. Assay of Acti-dione.
- 12424 NRRL, strain Y-610. 1956. W.D. Stovall strain 21041. Homothallic, also hybridizes with *S. lactis*, NRRL strains Y-1140 and Y-1205. J. Bact., 1956, 71, 290.

### Saccharomyces heterogenicus Osterwalder

- 10601\* NRRL, strain Y-1354. 1949. CBS.

### Saccharomyces lactis Dombrowski (*Torulopsis sphaerica*)

- 2628 (*Zygosaccharomyces versicolor*) NRRL, strain Y-62. 1946.
- 8563 and 8583 N.C. Laffer, strains 26 and 56 (Type C), Lederle Lab., Pearl River, N.Y. 1942. NRRL strains Y-1118 and Y-1138. Opposite mating type from 8585.
- 8585 and 8599 N.C. Laffer, strains 61 and 76 (Type C). 1942. NRRL strains Y-1140 and Y-1154. Opposite mating type from 8651. J. Bact., 1952, 63, 449.
- 8629 and 8630 N.C. Laffer, strains 122 and 123 (Type D). 1942. NRRL strains Y-1184 and Y-1185.
- 8651 N.C. Laffer, strain 151. 1942. CBS. NRRL strain Y-1205. J. Bact., 1952, 63, 449.
- 10689 (*Zygosaccharomyces casei*) NRRL, strain Y-1564. 1953.
- 12425 NRRL, strain Y-1114. 1956. Opposite mating type from 8585.
- 12426 NRRL, strain Y-1193. 1956. Homothallic.

### Saccharomyces lactis (NRRL Y-1205) x *S. marxianus* (*Zygosaccharomyces ashbyi*, NRRL Y-1598)

- 12709 L.J. Wickerham, strain (11). USDA, Peoria, Illinois. 1957. Homothallic.
- 12710 L.J. Wickerham, strain (24). 1957. Heterothallic; mates with 8585.

### Saccharomyces logos van Laer and Denamur ex Jørgensen (=*S. brasiliensis* Lindner)

- 10603 NRRL, strain Y-671. 1950. Joseph E. Seagram and Sons., Inc. strain 52.

### Saccharomyces marxianus Hansen

- 2343 F.W. Tanner, strain 2343, Univ. of Illinois. 1926. NRRL strain Y-37.
- 10606 NRRL, strain Y-1550. 1953. CBS.

- 12708 (*Zygosaccharomyces ashbyi*) NRRL, strain Y-1598. 1957.

### Saccharomyces mellis (Fabian and Quinet) Lodder and Kreger-van Rij

- 2625 NRRL, strain Y-61. 1946. Received as *Zygosaccharomyces ravennatis*.
- 2629 NRRL, strain Y-63. 1946. Received as *Z. perspicillatus*.
- 8381 (*Zygosaccharomyces richteri*) A.G. Lochhead, strain M1, Canada Dept. Agric., Ottawa. 1942. From fermented honey.
- 8382 (*Zygosaccharomyces nectarophilus*) A.G. Lochhead, strain N4. 1942. From floral nectar.
- 10685 NRRL, strain Y-1601. 1950. CBS.
- 12572 J.F.T. Spencer, strain P3a, National Research Council, Canada. 1956. Production of polyhydric alcohols.

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- Saccharomyces microellipsodes Osterwalder  
10605\* NRRL, strain Y-1549. 1950. CBS.
- Saccharomyces oviformis Osterwalder  
9769 P.R. Burkholder, strain 233, Yale Univ. 1945.
- Saccharomyces pastori (Guilliermond) Lodder and Kreger-van Rij  
2604 F.W. Tanner, Univ. of Illinois. 1927. NRRL strain Y-55.  
9671 E.C. Holst, USDA. 1945. Received as *Zygosaccharomyces pini*.
- Saccharomyces pastorianus Hansen  
12752\* NRRL, strain Y-1551. 1957. CBS.
- Saccharomyces rosei (Guilliermond) Lodder and Kreger-van Rij  
(*Torulopsis stellata* var. *cambresieri*)  
10664 NRRL, strain Y-1567, 1950. CBS.  
10744 (*Zygosaccharomyces globiformis*) O.B. Williams, Univ. of Texas. 1949.
- Saccharomyces rouxii Boutroux  
2615 (*Zygosaccharomyces gracilis*) NRRL, strain Y-225. 1946.  
Differentially ferments sucrose and glucose.  
2619 (*Z. variabilis*) NRRL, strain Y-228. 1946.  
2623 (*Z. gracilis* var. *italicus*) NRRL, strain Y-229. 1946.  
8383 (*Z. rugosus*) A.G. Lochhead, strain 139, Canada Dept. Agric., Ottawa. 1942.  
10383 (*Z. major*) NRRL, strain Y-1561. 1948. CBS.  
10687 (*Z. vini*) NRRL, strain Y-1563. 1953.  
11069 (*Z. japonicus* var. *soya*) CBS. 1951.  
12573 J.F.T. Spencer, strain H3C, National Research Council, Canada. 1956. Production of polyhydric alcohols.
- Saccharomyces rouxii var. polymorphus (Kroemer and Krumbholz)  
Lodder and Kreger-van Rij  
2606 F.W. Tanner, Univ. of Illinois. 1927. NCTC strain 813, NRRL Y-222. Received as *Zygosaccharomyces barkeri*.  
2610 and 2612 NRRL, strains Y-57 and Y-224. 1946. Received as *Zygosaccharomyces salsa* var. *saccharosum*.  
2624 NRRL, strain Y-1022. 1946. A.G. Lochhead strain Z-2.  
10682 (*Zygosaccharomyces citrus*) NRRL, strain Y-1600. 1946. CBS.
- Saccharomyces steineri Lodder and Kreger-van Rij  
2367\* R. Chodat, strain 53, Univ. of Geneva, Switzerland. 1928. NRRL strain Y-140.
- Saccharomyces uvarum Beijerinck  
9771 P.R. Burkholder, strain 262, Yale Univ. 1945.  
10609 NRRL, strain Y-672. 1949. NCTC strain 468, Seagram strain 53.  
10613 NRRL, strain Y-969. 1953.
- Saccharomyces willianus Saccardo  
2329 (*S. intermedius*) F.W. Tanner, Univ. of Illinois. 1927. CBS.  
2360 H.C. Lichtstein, Univ. of Tennessee. 1951. NCTC strain 905. Assay of beta-alanine. J. Bact., 1949, 58, 215.  
Received as *S. fragilis*.  
9803 (*S. validus*) NCTC, strain 470. 1945.  
10598 (*S. elongatus*) NRRL, strain Y-1537. 1949. CBS.  
10611 (*S. tubiformis*) NRRL, strain Y-1555. CBS.

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### Saccharomyces willianus (Continued)

- 10614 (S. validus) NRRL, strain Y-830. 1952.  
10615 NRRL, strain Y-1566. 1949. CBS.

### Saccharomyces spp.

- 562 Wallerstein Lab., New York, strain 77. 1925. Tokay wine yeast.  
764 and 765 U.S. Forest Products Lab., Madison, Wis., strains Hungarian beer yeast and Wallerstein Lab. 53. 1926. Fermentation of waste sulfite liquor; acid tolerant.  
894 F.W. Tanner, Univ. of Illinois. 1926. Burgundy wine yeast.  
918 Hacienda El Potrero, Inc., Vera Cruz, Mexico. 1926. Production of alcohol from molasses.  
2358 F.W. Tanner, Univ. of Illinois. 1928. NRRL strain Y-43. From "California bees."  
2632 F.W. Tanner. 1926. From oysters.  
4905 H.E. Goresline, USDA. 1933. Fermentation of orange juice.  
4938 H.E. Goresline, USDA. 1934. NRRL strain Y-163. "Steinberg" strain, a cider yeast.  
10736 J.B. Tomasello, strain Riesling A-L, Hammonton, N.J. 1949.  
11428 K. Sato, strain 533, IFO. 1953. Kwass yeast.

### Saccharomyces ludwigii Hansen

- 11313 CBS. 1952.

### Saksenaea vasiformis Saksena

- 11963\* NRRL, strain A-5862. 1954. Mycologia, 1953, 45, 426.

### Saprolegnia dioica de Bary

- 10395 CBS. 1948.

### Saprolegnia ferax (Gruithuisen) Thuret

- 10396 CBS. 1948.

### Saprolegnia parasitica Coker

- 11393 CBS. 1952.

### Sarcinomyces crustaceus Lindner

- 11717 K. Sato, strain 4875, IFO. 1954.

### Schizobastosporion starkeyi-henricii Ciferri

- 4673 R. Ciferri, Dept. of Agric., Dominican Republic. 1930. NRRL strain Y-853.

### Schizophyllum commune Fries

- 9148 J. W. Sinden, strain Overholts 24782-R, Pennsylvania State Coll. 1947.

- 12671 J.R. Raper, strain "Blue 130," Harvard Univ. 1956.

### Schizosaccharomyces octosporus Beijerinck

- 2479 F.W. Tanner, Univ. of Illinois. 1927. NCTC strain 382, NRRL Y-854.

- 4206 CBS. 1927. NRRL strain Y-855.

### Schizosaccharomyces pombe Lindner

- 2476 F.W. Tanner, Univ. of Illinois. 1927. CBS. NRRL strain Y-164.

- 2478 F.W. Tanner, 1926. NRRL strain Y-9.

- 4133 (S. liquefaciens) F.A. McDermott, Eastern Alcohol Corp. 1927. CBS. Osterwalder's "sulfur resistant" yeast.



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### Schizosaccharomyces versatilis Wickerham and Duprat

9987\* NRRL, strain Y-1026. 1946. J. Bact., 1945, 50, 597.

10660 (*S. japonicus*) NRRL, strain Y-1361. 1946. CBS.

### Schizothecium longicollae Ames

11222\* L.M. Ames, ERDC. 1952.

### Schwanniomyces occidentalis Klöcker

2320 NRRL, strain Y-121. 1943.

2322\* NRRL, strain Y-10. 1943.

### Sclerotinia camelliae Hara

10906 Alice J. Watson, strain M-154, USDA. 1951.

### Sclerotinia fructicola (Winter) Rehm

9684 J.A. Roberts, USDA. 1945.

9954 G.W. Keitt, Univ. of Wisconsin. 1946.

9962 W.B. Hewitt, Univ. of California, Davis. 1946. From peach fruit.

### Sclerotinia fructigena Aderhold and Ruhland

11790 F. Beran, Bundesanst. Pflanzenschutz, Vienna. 1954.

### Sclerotinia gladioli (Massey) Drayton

6494 J.A. Stevenson, strain 1923, USDA. 1938. L.M. Massey.

### Sclerotinia homoeocarpa Bennett

10942, 10943 and 10944 CBS. 1951. Received as ascigerous, intermediate and perfect isolates, respectively.

### Sclerotinia laxa (Ehrenberg) Aderhold and Ruhland

9953 G.W. Keitt, Univ. of Wisconsin. 1946.

9961 W.B. Hewitt, Univ. of California, Davis. 1946. From apricot twig.

### Sclerotinia minor Jagger

11791 F. Beran, Bundesanst. Pflanzenschutz, Vienna. 1954.

### Sclerotinia sclerotiorum (Libert) de Bary

10939 and 10940 W.F. Jeffers, Univ. of Maryland. 1951. From lima bean and daisy, respectively.

### Sclerotinia trifoliorum Eriksson

11792 F. Beran, Bundesanst. Pflanzenschutz, Vienna. 1954.

### Sclerotium bataticola: See *Macrophomina phaseoli*

### Sclerotium cepivorum Berkeley

11793 F. Beran, Bundesanst. Pflanzenschutz, Vienna. 1954.

### Sclerotium rolfsii Saccardo: See also *Corticium centrifugum*

11940 W.F. Jeffers, Univ. of Maryland. 1954. From bulbous iris in Oregon. Large sclerotial form, reported as *S. delphinii*.

12450 W.D. McClellan, USDA. 1956. From bulbous iris in Maryland. Small sclerotial form.

### Scopulariopsis brevicaulis (Saccardo) Bainier

7903 C. Thom, strain 480-2, USDA. 1940. NRRL strain 1096.

7123 CBS. 1938. Received as *Malassezia tropica*.

### Sepedonium chrysospermum Bulliard ex Fries (= *Hypomyces chrysospermus* Tulasne)

11243 QMRDC, strain 1055. 1953.

### Septomyxa affinis (Sherbakoff) Wollenweber

6737 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.

### Septoria avenae Frank

12277 A.L. Hooker, strain O-424-A, Univ. of Wisconsin. 1955.



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- Septoria gladioli Passerini  
6392 J.G. Hararr, Virginia Polytech. Inst., Blacksburg. 1938.
- Septoria lycopersici Spegazzini  
10810 C.F. Andrus, strain 376, USDA, Charleston, S.C. 1950.  
10814 G.B. Cummins, strain 696, Purdue Univ. 1951.
- Septoria macropoda Passerini var. septulata (Gonzalez Fragoso) Sprague  
7723 J.A. Stevenson, strain S 118, USDA. 1940. R. Sprague.
- Septoria nodorum Berkeley  
6738 CBS. 1953.
- Septoria phyllachoroides Passerini  
7730 J.A. Stevenson, strain S 234, USDA. 1940. R. Sprague.
- Sordaria destruens (Shear) Hawker  
12419 CMI, strain 44227. 1955.
- Sordaria fimicola (Roberge) Cesati and DeNotaris  
6739 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1938.  
9985 NRRL, strain 1558. 1946.
- Spegazzinia tessartha (Berkeley and Curtis) Saccardo  
11964 W.F. Jeffers, Univ. of Maryland. 1954. QMRDC strain 371e.
- Sphaceloma hederæ Bitancourt and Jenkins  
11183 Anna E. Jenkins, strain 620-E, USDA. 1951. From English ivy, California.
- Sphaceloma perseæ Jenkins  
11190 Anna E. Jenkins, strain 707, USDA. 1951. From avocado, Mexico.
- Sphaceloma populi (Saccardo) Jenkins  
11181 Anna E. Jenkins, strain 227 Ca, USDA. 1951.
- Sphaceloma rhois Bitancourt and Jenkins  
11194 Anna E. Jenkins, strain 118d, USDA. 1951.
- Sphaceloma sp.  
11354 Anna E. Jenkins, strain T2, USDA. 1952. From Camellia sinensis.
- Sphacelotheca cruenta (Kühn) Potter  
12649 C.W. Blackmon, N.E. Louisiana State Coll. 1956.
- Sphaerostilbe auranticola (Berkeley and Broome) Petch  
9558 E.S. Luttrell, strain 76, Georgia Agric. Expt. Sta. 1944.
- Spicaria violacea Abbott  
10525\* NRRL, strain 901. 1948. E.V. Abbott.
- Spicularia terrestris Timonin  
10095\* M. Timonin, strain 1121, Canada Dept. of Agric., Ottawa. 1946. Canadian J. Res., 1940, 18, 307.
- Spondylocladium atrovirens Harz  
10846 Lillian Cash, USDA. 1951.  
10902 R. Bonde, Maine Agric. Expt. Sta. 1951.
- Sporidiobolus johnsonii Nyland  
10765\* G. Nyland, Univ. of California, Davis. 1950. Mycologia, 1949, 41, 686.
- Sporobolomyces pararoseus Olson and Hammer  
11386 (S. shibatani) K. Sato, strain 376, IFO. 1952.
- Sporobolomyces salmonicolor (Fischer and Brebeck) Kluyver and van Niel  
623 A.J. Kluyver, Techn. Univ., Delft. 1926.
- Sporodinia grandis: See Syzygites megalocarpus

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Sporotrichum anglicum: See *Endomycopsis chodati*

Sporotrichum bombycinum (Corda) Rabenhorst

7139 CBS. 1938.

Sporotrichum carnis: See *Aleurisma carnis*

Sporotrichum carougeai Langeron

11262 (*Oospora variabilis*) CBS. 1952. Strain Castelli.

Sporotrichum cerebriforme de Vries

12124 CBS. 1955.

Sporotrichum epigaeum Brunaud

7145 CBS. 1938.

Sporotrichum gougeroti Matruchot

10986 Rhoda Benham, strain 1012, Columbia Univ. 1951.

Sporotrichum parvulum Brunhardt

7153 CBS. 1938.

Sporotrichum schenckii Hektoen and Perkins

6243 T. Benedek, Northwestern Univ. 1938.

7158 CBS. 1938.

7968 J.S. D'Antoni, strain 105, Tulane Univ. 1941.

8307 R.M. Pike, Bassett Hospital, Cooperstown, N. Y. 1941.

9523 O. Felsenfeld, Chicago Medical School. 1944.

10212 and 10213 C.W. Emmons, strains 7019 and 7020, NIH. 1947.

10268 A.E. de Arêa Leão, strain 2066, IOC. 1947.

Sporotrichum sulfurescens van Beyma

7159 CBS. 1938.

Stachybotrys atra Corda

9182 G.A. Greathouse, strain 1331.2, USDA. 1943. QMRDC strain 1274, NRRL 1877. For testing mildew proofing.

10695 QMRDC, strain 94d, 1953. Cellulose and wool decomposition.

Stachybotrys lobulata Berkeley

7436 J.A. Stevenson, USDA. 1939.

11716 K. Sato, strain 5369, IFO. 1954.

Stemphylium loti Graham

11718\* J.H. Graham, strain 339, USDA, State Coll., Pa. 1954. Phytopath., 1953, 43, 578.

Stemphylium radicinum (Meier, Drechsler and Eddy) Neergaard

6503 J.A. Stevenson, strain 5350, USDA. 1938.

Stemphylium sarciniforme (Cavara) Wiltshire

10820 Helen Sherwin, strain 2906, USDA. 1950.

10828 (*Macrosporium sarcinaeforme*) G.L. McKnew, Boyce Thompson Inst., Yonkers, N.Y. 1950. J.G. Horsfall.

Stemphylium solani Weber

11128 C.F. Andrus, strain 319B-2, USDA, Charleston, S.C. 1952.

Stemphylium sp.

9569 P.B. Marsh, strain 1203.1, USDA. 1944. For testing mildew proofing.

Stereum fasciatum (Schweinitz) Fries

9398 and 9425 J.W. Sinden, Overholts strains 24688-R and 24689-R, Pennsylvania State Coll. 1947.

Stereum frustulatum (Persoon ex Fries) Fuckel

12582 (*S. frustulosum*) Frances F. Lombard, strain F.P. 56461-R, USDA. 1956.

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### Stereum gausapatum Fries

- 9396 J.W. Sinden, Overholts strain 24702-R, Pennsylvania State Coll. 1947.

### Stereum purpureum (Persoon) Fries

- 12283 Frances F. Lombard, strain R-167, USDA. 1955. D.S. Welch.

### Stereum rameale Schweinitz

- 9397 J.W. Sinden, Overholts strain 24673-R, Pennsylvania State Coll. 1947.

### Stereum sanguinolentum Albertini and Schweinitz ex Fries

- 12233 Frances F. Lombard, strain Flo. 457-A, USDA. 1955. From balsam fir.

### Stereum subpileatum Berkeley and Curtis

- 10938 W.F. Jeffers, Univ. of Maryland. 1951. R.W. Davidson.

### Stysanus stemonitis (Persoon) Corda

- 11259 CBS, strain Boedijn-Reitsma. 1952.

- 12249 C.W. Roane, Virginia Polytech. Inst., Blacksburg. 1955.

### Syncephalastrum fuliginosus Bainier

- 8981 V.M. Cutter, Jr., strain 149, Cornell Univ. 1942.

### Syncephalastrum nigricans Vuillemin

- 12266 L.W. Durrell, Colorado A. and M. Coll., Fort Collins. 1955.

### Syncephalastrum racemosum (Cohn) Schroeter

- 1332b (-) A.F. Blakeslee, CIW. 1938.

- 7854a (+) and 7859b (-) A.F. Blakeslee. 1940.

### Syncephalastrum sp.

- 7938 V.M. Cutter, Jr., strain 62, Cornell Univ. 1941.

### Syncephalis nodosa van Tieghem

- 7943 V.M. Cutter, Jr., strain 67, Cornell Univ. 1941.

### Syzygites megalocarpus Ehrenberg ex Fries

- 11807 (Sporodinia grandis) NRRL, strain 2406. 1954.

### Taphrina deformans (Fuckel) Tulasne

- 11124 CBS. 1952. From peach.

### Taphrina letifera (Peck) Saccardo

- 11691 A.J. Mix, strain 792, Univ. of Kansas. 1953. From *Acer spicatum*.

### Taphrina robinsonia Giesenhagen

- 11693 A.J. Mix, strain 803, Univ. of Kansas. 1953. From *Alnus rugosa*.

### Thamnidium elegans Link

- 8997 V.M. Cutter, Jr., strain 114, Cornell Univ. 1942.

- 11808 NRRL, strain 1613. 1954.

- 11878 CMI, strain 21945. 1954. F.T. Brooks, from meat. NCTC strain 1127.

- 11882 CBS. 1954.

### Thielavia sepedonium Emmons

- 9787\* NRRL, strain 1697. 1945. C.W. Emmons.

- 11814 W.W. Diehl, USDA. 1945.

### Thielavia terricola Emmons

- 11769 P.B. Marsh, strain 46, USDA. 1954.

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- Thielaviopsis basicola (Berkeley and Broome) Ferraris  
 9109 J.A. Stevenson, USDA. 1943. E.E. Clayton, from tobacco roots.  
 9853 J.A. Stevenson, USDA. 1945. From New Zealand.
- Thraustotheca clavata (de Bary) Humphrey  
 10948 John N. Couch, Univ. of North Carolina. 1951.
- Tieghemella italica and T. orchidis: See Absidia
- Tilletiopsis minor Nyland  
 10764\* G. Nyland, Univ. of California, Davis. 1950. Mycologia, 1950, 42, 487.
- Torula: See also Candida, Gliomastix, Pullularia, Rhodotorula, and Torulopsis
- Torula cremoris: See Candida pseudotropicalis
- Torula dematia Berkhout  
 8462 NCTC, strain 4526. 1942. CBS.
- Torulopsis aerea (Saito) Lodder  
 10665\* NRRL, strain Y-1399. 1948. CBS.
- Torulopsis albida: See Cryptococcus albidus
- Torulopsis bacillaris (Kroemer and Krumbholz) Lodder  
 10667 NRRL, strain Y-1444. 1953.
- Torulopsis candida (Saito) Lodder  
 2560 NRRL, strain Y-211. 1948.
- Torulopsis citrus Recca and Mrak  
 11504\* J.A. Recca, strain 207, Univ. of California, Davis. 1953. Food Technol., 1952, 6, 450.
- Torulopsis colliculosa (Hartmann) Saccardo  
 2507 F.W. Tanner, Univ. of Illinois. 1926. CBS. NRRL strain Y-172.
- Torulopsis dattila (Kluyver) Lodder  
 10691 NRRL, strain Y-1289. 1949. E.M. Mrak, strain 185.
- Torulopsis famata (Harrison) Lodder and Kreger-van Rij  
 12790 NRRL, strain Y-548. 1957.
- Torulopsis flavescens: See Cryptococcus laurentii var. flavescens
- Torulopsis glabrata (Anderson) Lodder and DeVries  
 2001\* NRRL, strain Y-65. 1957. H.W. Anderson, Univ. of Illinois.
- Torulopsis gropengiesseri (Harrison) Lodder  
 10669\* NRRL, strain Y-1445. 1953. CBS.
- Torulopsis holmii (Jørgensen) Lodder  
 10670 NRRL, strain Y-1507. 1956. CBS.
- Torulopsis kefir: See Candida pseudotropicalis var. lactosa
- Torulopsis laurentii: See Cryptococcus laurentii
- Torulopsis lipofera: See Lipomyces lipoferus
- Torulopsis luteola: See Cryptococcus luteolus
- Torulopsis rotundata: See Cryptococcus diffluens
- Torulopsis sphaerica (Hammer and Cordes) Lodder: See also Saccharomyces lactis  
 2504\* F.W. Tanner, Univ. of Illinois. 1928. B.W. Hammer and W.A. Cordes, Univ. of Iowa. NRRL strain Y-1098.  
 8625 N.C. Laffer, strain 110, Lederle Lab., Pearl River, N.Y. 1942. NRRL strain Y-1180.

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### Torulopsis sphaerica (Continued)

- 8549, 8606 and 8632 N.C. Laffer, strains 10, 83 and 125 (Type A).  
1942. NRRL strains Y-1104, Y-1161 and Y-1187. From  
domestic (U.S.A.) sources. Also numerous additional strains.  
8637, 8647 and 8652 N.C. Laffer, strains 132, 146 and 162 (Type A).  
1942. NRRL strains Y-1192, Y-1202 and Y-1206. From  
European sources.

### Torulopsis stellata (Kroemer and Krumbholz) Lodder

- 10673 NRRL, strain Y-1446. 1955. CBS.

### Torulopsis utilis: See *Candida utilis*

### Torulopsis uvae: See *Candida zeylanoides*

### Trametes serialis Fries

- 11751 Frances F. Lombard, strain Colo. 51-126, USDA. 1954.

### Trametes suaveolens Linnaeus ex Fries

- 9417 J.W. Sinden, Overholts strain 24777-S, Pennsylvania State  
Coll. 1947.

### Tricellula curvatis Haskins

- 11837 M.A. Gordon, strain F-24, CDC. 1954.

### Trichoderma viride Persoon ex Fries See also *hypocrea rufa*

- 8678 (*Trichoderma lignorum*) NRRL, strain 1762. 1942.  
8751 J.E. Machacek, Canada Dept. Agric., Winnipeg. 1942.  
10043, 10044, 10045 and 10046 NCTC, strains 7057, 7056, 7055 and  
7058. 1946. Production of viridin.

### Trichoderma sp.

- 9645 W.H. Weston, strain T-1, Harvard Univ. 1944. Military  
specifications for fungus resistance testing.  
12668 P.F. Klens, strain 609, Nuodex Products Co., Elizabeth,  
N.J. 1956. From industrial pipe insulation; for fungus  
resistance testing.

### Trichophyton balcaneum Castellani

- 763 A. Castellani, Inst. Med. Trop., Lisbon. 1954.

### Trichophyton batonrougei Castellani

- 11898 A. Castellani, Inst. Med. Trop., Lisbon. 1954.

### Trichophyton concentricum Blanchard

- 761 (*Endodermophyton concentricum*) A. Castellani, Inst. Med.  
Trop., Lisbon. 1954.  
9358 N.F. Conant, Duke Univ., Durham, N.C. 1947. From *tinea*  
*imbricata*

### Trichophyton equinum (Matruchot and Dansonville) Gedoelst

- 12544, 12545, 12546 and 12547 Lucille K. Georg, strains B-56, B-57,  
B-58 and B-59, CDC. 1956.

### Trichophyton faviforme: See *T. verrucosum*

### Trichophyton ferrugineum (Ota) Langeron and Milochevitch

- 10809 Lucille K. Georg, strain A-360, CDC. 1950. J.E. Mackinnon.  
IHM.  
11992 K. Sato, strain 5832, IFO. 1954.

### Trichophyton gallinae (Megnin) Blanchard

- 11094 and 12108 Lucille K. Georg, strains A-7 and A-929, CDC. 1955.

### Trichophyton megnini Blanchard

- 7214 (*T. vinosum*) CBS. 1938.  
11093 Lucille K. Georg, strain A-302, CDC. 1951.



## FUNGI AND YEASTS

### Trichophyton megnini (Continued)

- 12106 and 12107 Lucille K. Georg, strains 424 and A-617. 1955.  
Require histidine.

### Trichophyton mentagrophytes (Robin) Blanchard

- 4807 and 4808 F.D. Weidman, Univ. of Pennsylvania. 1932. From tinea pedis.  
7201 (T. persicolor) CBS. 1938.  
8125 E. Muskatblitt, New York, N.Y. 1941. From tinea barbae.  
8294 F.D. Weidman, strain 4011, Univ. of Pennsylvania. 1941.  
8757 and 8758 (T. gypseum asteroides) C.W. Emmons, strains 607 and 582, NIH. 1942.  
9129 and 9533 (T. interdigitale) C.W. Emmons, strains 598 and 640. 1944. From tinea pedis. For germicide testing.  
9972 (T. gypseum) C.W. Emmons, strain 666. 1946. From ringworm of dog. For germicide testing.  
10270 and 10271 A.E. de Arêa Leão, strains 2415 and 2417, IOC. 1947. From tinea capitis.  
11480 and 11481 (T. quinckeanum) C.W. Emmons, strains 679 and 680, NIH. 1953. From dermatophytosis of cat and man.

### Trichophyton rotundum da Fonseca

- 7209 CBS. 1938.

### Trichophyton rubrum (Castellani) Sabouraud

- 10218 C.W. Emmons, strain 671, NIH. 1947. From onychomycosis.  
10272 A.E. de Arêa Leão, strain 2419, IOC. 1947.  
10789 C.W. Emmons, strain 674, NIH. 1950.  
11900 and 11990 A. Castellani, strains 1 and 2, Inst. Med. Trop., Lisbon. 1954.

### Trichophyton schoenleinii (Lebert) Langeron and Milochévitch

- 4822 F.D. Weidman, Univ. of Pennsylvania. 1932. From favus.  
10397 CBS. 1948.  
11682 and 11683 Lucille K. Georg, strains A-726 and A-727, CDC. 1953.

### Trichophyton soudanense Joyeux

- 11723 J.L. Wood, strain D-96, Johns Hopkins Univ. Hospital, Baltimore. 1954.

### Trichophyton sulfureum: See T. tonsurans

### Trichophyton tonsurans Malmsten

- 9194 and 9196 C.W. Emmons, strains 643 and 641, NIH. 1943.  
9292 (T. sabouraudi) C.W. Emmons, strain 525. 1944.  
10217 C.W. Emmons, strain 662. 1947. From tinea capitis.  
10220 (T. sulfureum) C.W. Emmons, strain 651. 1947. From tinea capitis.

### Trichophyton verrucosum Bodin var. album (Sabouraud) Georg

- 10694 (T. faviforme) Lucille K. Georg, strain A-8, CDC. 1953.  
From favus.

### Trichophyton verrucosum Bodin var. discoides (Sabouraud) Georg

- 10695 Lucille K. Georg, strain A-9. 1951.

### Trichophyton verrucosum Bodin var. ochraceum (Sabouraud) Georg

- 10696 Lucille K. Georg, strain A-10. 1951.

### Trichophyton violaceum Sabouraud

- 8376 C.W. Emmons, strain 628, NIH. 1942.

## FUNGI AND YEASTS

### Trichophyton violaceum (Continued)

11902 A. Castellani, Inst. Med. Trop., Lisbon. 1954.

### Trichosporium cerealis (Thuemen) Saccardo

6727 (*Oidiodendron nigrum*) J.E. Machacek, Canada Dept. Agric.,  
Winnipeg. 1938.

### Trichosporon capitatum Diddens and Lodder

10663 NRRL, strain Y-1487. 1951. CBS.

### Trichosporon cutaneum (de Beurm et al.) Ota

757 (*Oidium rotundatum*) A. Castellani, Tulane Univ., New  
Orleans. 1926.

4155 (*Parendomyces asteroides*) F.D. Weidman, Univ. of  
Pennsylvania. 1927. M. Ota, strain D.R. 1670.

### Trichosporon fermentans Diddens and Lodder

10675\* NRRL, strain Y-1492. 1951. CBS.

### Trichosporon margaritiferum (Stautz) Buchwald

10676\* NRRL, strain Y-1519. 1956. CBS.

### Trichosporon pullulans (Lindner) Diddens and Lodder

9331 NRRL, strain Y-1485. 1947.

10677 NRRL, strain Y-1522. 1951.

### Trichosporon sericeum Diddens and Lodder

10678 NRRL, strain Y-1523. 1956.

### Trichosporon spp.

4151 C.H. Drake, Washington State Coll., Pullman. 1955. M. Ota,  
strain D.R. 1665. Received as *T. malassezi*, a doubtful name.

10266 A.E. de Arêa Leão, strain 2037, IOC. 1947. Received as  
*T. giganteum*, a doubtful name.

10267 A.E. de Arêa Leão, strain 2041, IOC. 1947. Received as  
*T. beigellii*, a doubtful name.

### Trichothecium roseum Link ex Fries

8685 (*Cephalothecium roseum*) NRRL, strain 1665. 1942.

12519 R.W. Thoma, strain 1639, Squibb Inst. Med. Res., New  
Brunswick, N.J. 1956.

12543 Chas. Pfizer and Co., Inc., Brooklyn, N.Y., strain 961-48N.  
1956. U.S. Patent 2, 765, 258.

### Trigonopsis variabilis Schachner

10679\* NRRL, strain Y-1579. 1954. CBS.

### Tritirachium purpureum (Saito) van Beyma

11385 K. Sato, strain 4844, IFO. 1952.

### Tuber melanosporum Vittadini

11343 W.F. Jeffers, Univ. of Maryland. 1952. T.E. Ayers, USDA.

### Typhula itoana Imai

11860 CBS. 1954. Japan.

### Umbellomyces tetrasporus Saito

11387 K. Sato, strain 5464, IFO. 1952

### Urnula craterium (Schweinitz) Fries (*Strumella coryneoidia*)

11067 Frances Lombard, strain 94444-B, USDA. 1951.

### Ustilago avenae (Persoon) Rostrup

10056 C.S. Holton, strain 129-4, USDA, Pullman Washington, 1946.

## FUNGI AND YEASTS

### Ustilago kolleri Wille (U. levis)

- 10057 C.S. Holton, strain 65-3, USDA. Pullman, Washington. 1946.  
Mutant from buff smut of oats.

### Ustilago maydis (DeCandolle) Corda (U. zeae)

- 10817, 10818 and 10819 E.C. Stakman, strains 410qq, solopathogenic;  
10A4 and 17D4, intercompatible, Univ. of Minnesota. 1950.  
11427 R.H. Haskins, strain 119, Prairie Regional Lab., Saskatoon,  
Canada. 1953. Production of ustilagic acid.

### Ustilago sphaerogena Burrill

- 12421 P.J. Allen, strain 50-315, Univ. of Wisconsin. 1956. Mono-  
sporidial strain.

### Ustilina vulgaris Fries

- 8742 J.A. Stevenson, strain 71499, USDA. 1942.

### Venturia cerasi Aderhold

- 12119 (*Fusicladium cerasi*) CBS. 1955.

### Venturia inaequalis (Cooke) Aderhold

- 11096 W.F. Jeffers, Univ. of Maryland. 1951.

### Verticillium albo-atrum Reinke and Berthold

- 10933 O.S. Cannon, Utah Agric. Expt. Sta., Logan. 1950. From  
tomato wilt.  
12127 J.R. Leclercq, Coulommiers, France. 1955. From alfalfa  
wilt.

### Verticillium cinnabarinum (Corda) Reinke and Berthold (= *Nectria inventa* Pethybridge)

- 12267 (*V. lateritium*) L.W. Durrell, Colorado A. and M. Coll.,  
Fort Collins. 1955.

### Verticillium dahliae Klebahn

- 7611 F.A. Weiss, strain 837, USDA. 1939. From dahlia wilt.  
11405 and 11406 R. Nelson, strains 32 and 76, Michigan State Coll.  
1952. From peppermint wilt.

### Verticillium sp.

- 11342 W.F. Jeffers, Univ. of Maryland. 1952. T.E. Ayers, USDA.  
From cultivated mushroom.

### Volutella buxi (Fries) Berkeley and Broome

- 10933 W.F. Jeffers, Univ. of Maryland. 1951.

### Xylaria hypoxylon Linnaeus ex Greville

- 9554 E.S. Luttrell, strain 61, Georgia Agric. Expt. Sta. 1944.  
Ascospore isolate from red apple.

### Zyghansenula californica: See *Hansenula californica*

### Zygopichia chevalieri: See *Pichia membranaefaciens*

### Zygopichia farinosa: See *Pichia farinosa*

### Zygorhynchus dangeardi: See *Z. vuilleminii*

### Zygorhynchus exponens Burgeff

- 6835 A.F. Blakeslee, strain C972, CIW. 1938.

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## ALGAE AND PROTOZOA

Zygorhynchus heterogamus Vuillemin

6743 J.E. Machacek, Canada Dept. Agric., Winnipeg, 1938.

Zygorhynchus moelleri Vuillemin

1208 A.F. Blakeslee, strain C1004, CIW. 1938.

Zygorhynchus vuilleminii Namyslowski

6744 J.E. Machacek, Canada Dept. Agric., Winnipeg, 1938.

6838 A.F. Blakeslee, strain C1005, CIW. 1938.

7939 (Z. dangeardi) V.M. Cutter, Jr., strain 63, Cornell Univ. 1941.

Zygosaccharomyces: See *Saccharomyces* for ascosporous forms,  
Torulopsis for others.

## ALGAE AND PROTOZOA

Anabaena catenula (Kützinger) Bornet and Flahault

11864 R.C. Starr, strain B 375, Univ. of Indiana. 1953.

Anabaena variabilis Kützinger

11865 R.C. Starr, strain B 377, Univ. of Indiana. 1953.

Ankistrodesmus braunii (Naegeli) Collins

11476 R.W. Krauss, strain Pringsheim 202-3, Univ. of Maryland. 1956.

Chlorella ellipsoidea Gerneck

11466 R.W. Krauss, strain Pringsheim Z-2-1-1 BAD, Univ. of Maryland. 1953.

Chlorella pyatt

11468 R.W. Krauss, strain Pringsheim 211-11h, Univ. of Maryland. 1953.

Chlorella pyrenoidosa Chick

7516 F.E. Allison, strain L-72a, USDA. 1939.

11469 R.W. Krauss, strain Pringsheim 211-8b, Univ. of Maryland. 1953.

Chlorella vulgaris Beijerinck

9765 F.E. Allison, strain L-756a, USDA. 1945.

11467 R.W. Krauss, strain Pringsheim Z-2-4-1 BAD, Univ. of Maryland. 1953.

Coccomyxa simplex Mainz

11471 and 11472 R.W. Krauss, strains Pringsheim Z-3-1-1 BAD and 216-9a, Univ. of Maryland. 1953.

Crithidia fasciculata Leger11745 (*Herpetomonas culicidarum*) Helene A. Nathan, Haskins Lab., New York, N.Y. *Anopheles* strain. Ann. N.Y. Acad. Sci., 1953, 56, 972.Euglena gracilis Klebs12716 S.H. Hutner, strain Z, Haskins Lab., New York, N.Y. 1957. Assay of vitamin B<sub>12</sub>.

## ALGAE AND PROTOZOA

### Euglena gracilis Klebs var. bacillaris Pringsheim

- 10616 L. Provasoli and S.H. Hutner, Haskins Lab., New York, N.Y. 1949. Assay of vitamin B<sub>12</sub>. Proc. Soc. Exptl. Biol. and Med., 1948, 69, 279.

### Gyrorffiana humicola Kol

- 11473 R.W. Krauss, strain Pringsheim Z-5-1-1 BAD. Univ. of Maryland. 1953.

### Lampropedia hyalina (Ehrenberg) Schroeter

- 11041 E.G. Pringsheim, Cambridge Univ. 1951.

### Mesotaenium caldariorum (Lagerheim) Hansgird

- 11475 R.W. Krauss, strain Pringsheim Z-8-1-1 BAD, Univ. of Maryland. 1953.

### Ochromonas malhamensis Pringsheim

- 11532 S.H. Hutner, Haskins Lab., New York, N.Y. 1953. Assay of vitamin B<sub>12</sub>.

### Pleurochloris commutata Vischer

- 11474 R.W. Krauss, Pringsheim strain 860-1, Univ. of Maryland. 1953.

### Poteriochromonas stipitata Scherffel

- 11531 S.H. Hutner, Haskins Lab., New York. 1953. R.A. Lewin, Maritime Res. Lab., Nova Scotia. Assay of cobalimin and thiamine.

### Scenedesmus basiliensis Vischer

- 11461 R.W. Krauss, strain Pringsheim Z-14-1-1 BAD, Univ. of Maryland. 1953.

### Scenedesmus bijugatus (Turpin) Kützing

- 11462 R.W. Krauss, strain Pringsheim Z-14-2-1 BAD. 1953.

### Scenedesmus naegelii Chodat

- 11463 R.W. Krauss, strain Pringsheim 276-2. 1953.

### Scenedesmus obliquus (Turpin) Kützing

- 11457 and 11458 R.W. Krauss, strains Pringsheim 276-3A and WHSO. 1953.

- 11477 R.W. Krauss, strain Fager D-3 PB 6A. 1953.

### Scenedesmus quadricauda (Turpin) Brebisson

- 11459 and 11460 R.W. Krauss, strains Pringsheim 276-4a and 276-4b. 1953.

### Scenedesmus spp.

- 11464 and 11465 R.W. Krauss, strains Pringsheim A-14-4-1 BAD and Z-14-3-1 BAD. 1953.

### Tetrahymena pyriformis (Ehrenberg) Lwoff

- 9357 and 10542 M.S. Dunn, strains H and W, Univ. of California, Los Angeles. 1948.

- 12317 S.H. Hutner, strain S, Haskins Lab., New York, N.Y. 1955.



# ORGANISMS FOR ASSAY\*

## 1. Amino Acids\*\*

	Alanine	Arginine	Aspartic acid	Cystine	Glutamic acid	Glycine	Histidine	Isoleucine	Leucine	Lysine	Methionine	Phenylalanine	Proline	Serine	Threonine	Tryptophane	Tyrosine	Valine
<i>Clostridium perfringens</i> 10543 (2)	+	+			+		+	+	+		+	+		+	+	+	+	+
<i>Escherichia coli</i> 9661 (3)	+	+														+		
<i>Escherichia coli</i> 9662																		
<i>Escherichia coli</i> 9663											+							
<i>Lactobacillus acidophilus</i> 4913	+	+			+													+
<i>Lactobacillus casei</i> 7469					+			+	+			+		+		+	+	
<i>Lactobacillus casei</i> 9595 (4)			+									+		+				
<i>Lactobacillus fermenti</i> 9338							+								+			
<i>Lactobacillus plantarum</i>																		+
( <i>L. arabinosus</i> 17-5) 8014 (5, 6)				+	+			+	+	+	+	+				+	+	
<i>Neurospora crassa</i> 9344									+				+					
<i>Neurospora crassa</i> 10334																		
<i>Neurospora crassa</i> 10335										+								
<i>Neurospora crassa</i> 10780											+							
<i>Pediococcus cerevisiae</i>																		
( <i>Leuconostoc citrovorum</i> ) 8081 (1, 8)	+					+												+
<i>Streptococcus faecalis</i> 9790 (4)		+					+		+	+	+				+	+		
<i>Streptococcus faecalis</i>																		
( <i>S. lactis</i> R) 8043 (10, 11)		+			+						+					+		+
<i>Streptococcus</i> sp. ( <i>Leuconostoc</i>																		
<i>mesenteroides</i> P-60) 8042 (7, 8, 9)		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

- (1) J. Biol. Chem., 1949, 177, 545.
  - (2) J. Biol. Chem., 1948, 174, 1027.
  - (3) J. Bact., 1944, 48, 401.
  - (4) J. Biol. Chem., 1945, 160, 35
  - (5) J. Biol. Chem., 1945, 157, 141.
  - (6) J. Biol. Chem., 1945, 157, 265.
  - (7) J. Biol. Chem., 1947, 168, 51.
  - (8) J. Biol. Chem., 1949, 177, 533.
  - (9) J. Biol. Chem., 1944, 156, 715.
  - (10) Proc. Soc. Exptl. Biol. Med., 1946, 61, 158
  - (11) J. Amer. Chem. Soc., 1945, 67, 196.
- \* Adapted in part from Anal. Chem., 1958, 30, 849
- \*\* See also, under 2: Production, Decarboxylases, for assay

## USES

### 2. Antibiotics Assay (1,2)

#### Actithiazic acid

*Mycobacterium smegmatis* 607

#### Anisomycin

*Saccharomyces cerevisiae* 9763 (PCI M50)

Aureomycin, see Chlortetracycline

#### Bacitracin

*Micrococcus flavus* 10240 (PCI 1216)

*Sarcina subflava* 7468 (PCI 1009)

*Staphylococcus aureus* 10537 (PCI 1203)

*Streptococcus pyogenes* 8668, 9342 (PCI 1311)

#### Carbomycin (Magnamycin)

*Bacillus subtilis* 6633

*Streptococcus pyogenes* 8668

#### Chloramphenicol

*Sarcina lutea* 9341 (PCI 1101)

*Shigella sonnei* 11060

Chloromycetin, see Chloramphenicol

#### Chlortetracycline

*Bacillus cereus* 10702, 11778 (PCI 213)

*Bacillus subtilis* 6633 (PCI 219)

*Sarcina lutea* 9341 (PCI 1001)

*Staphylococcus aureus* 6538P (PCI 1209)

*Streptococcus pyogenes* 8668

#### Cycloheximide (Acti-dione)

*Saccharomyces cerevisiae* 2366

*Saccharomyces fragilis* 8635

#### Erythromycin

*Bacillus subtilis* 6633

*Staphylococcus aureus* 6538P

*Streptococcus pyogenes* 8668

#### Neomycin

*Staphylococcus aureus* 6538P, 6538DR, 12228

*Escherichia coli* 9637

#### Novobiocin (Cathomycin)

*Bacillus subtilis* 12432

#### Oleandomycin

*Sarcina lutea* 9341 (PCI 1001)

*Staphylococcus aureus* 12228 (PCI 1200)

#### Oxytetracycline

*Bacillus cereus* 11778 (PCI 213)

*Klebsiella pneumoniae* 10031 (PCI 602)

*Staphylococcus aureus* 6538P (PCI 1209)

*Streptococcus pyogenes* 8668

## USES

### Puromycin (Achromycin)

*Bacillus cereus* 11778 (PCI 213)

### Penicillin

*Escherichia coli* 9637

*Bacillus subtilis* 9466, 9524

*Sarcina lutea* 9341 (PCI 1001)

*Staphylococcus aureus* 6538P, 9801, 11522, 12692, 12715 (PCI 1209/T)

*Streptococcus pyogenes* 8668

### Pleocidin

*Proteus vulgaris* 7829

### Polymyxin (Aerosporin)

*Bordetella bronchiseptica* 4617, 12714 (PCI 1701/O)

*Escherichia coli* 10536 (PCI 540)

*Klebsiella pneumoniae* 10031 (PCI 602)

### Streptomycin

*Alcaligenes* sp. 10153

*Bacillus circulans* 9966

*Bacillus megaterium* 9885

*Bacillus subtilis* 6633, 9524

*Escherichia coli* 9637

*Klebsiella pneumoniae* 9997, 10031 (PCI 602)

*Serratia marcescens* 9986

*Staphylococcus aureus* 6538P, 9996

### Streptothricin

*Alcaligenes* sp. 10153

*Bacillus subtilis* 9466, 9524

*Escherichia coli* 9637

*Klebsiella pneumoniae* 9997

### Subtilin

*Arthrobacter citreus* 11624

### Terramycin, see Oxytetracycline

### Tyrothricin

*Streptococcus faecalis* 10541 (PCI 1341)

*Streptococcus* sp. 9854

### Viomycin (Viocin)

*Bacillus subtilis* 6633, 11838

*Klebsiella pneumoniae* 10031 (PCI 602)

*Mycobacterium phlei* 356

*Mycobacterium smegmatis* 362

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PCI = Penicillin Control and Immunology, U.S. Food and Drug Administration.

- (1) Kersey, Roger C. and Fink, Frederick C. 1954. In "Methods of Biochemical Analysis" (David Glick, editor), Vol. 1, pp. 53-79. Interscience Publishers, Inc., New York, N.Y.
- (2) Grove, D.C. and Randall, W.A. 1955. Assay Methods of Antibiotics. A laboratory manual. Medical Encyclopedia, Inc., New York, N.Y.

## USES

### 3. Vitamin Assay

#### p-Aminobenzoic acid

Acetobacter suboxydans 621 (1)  
Clostridium acetobutylicum 824 (1)  
Lactobacillus plantarum 10012  
Lactobacillus plantarum (L. arabinosus 17-5) 8014 (1)  
Neurospora crassa 9278

#### Biotin

Ashbya gossypii 8717  
Lactobacillus casei 7469 (1)  
Lactobacillus plantarum (L. arabinosus 17-5) 8014 (1)  
Micrococcus sodonensis 11880 (2)  
Neurospora crassa 9277 (1)  
Rhizobium trifolii 10140 (1)  
Saccharomyces cerevisiae 7754 (1)  
Saccharomyces cerevisiae var. ellipsoideus 9896

#### Choline

Diplococcus pneumoniae 6303 (3)  
Neurospora crassa 9277 (1)

#### Folic acid

Bacillus coagulans 12245 (4)  
Lactobacillus casei 7469 (5)  
Streptococcus faecalis 8043 (5)

#### Inositol

Ashbya gossypii 8717  
Neurospora crassa 9683 (1)  
Saccharomyces carlsbergensis 9080 (1)  
Saccharomyces cerevisiae 7752

#### Nicotinic acid (niacin)

Acetobacter suboxydans 621 (6)  
Candida pseudotropicalis 2512 (1)  
Lactobacillus casei 7469  
Lactobacillus plantarum (L. arabinosus 17-5) 8014 (1)  
Leuconostoc mesenteroides 9135 (1)

#### Pantothenic acid

Acetobacter suboxydans 621  
Lactobacillus casei 7469 (1)  
Lactobacillus plantarum (L. arabinosus 17-5) 8014 (1)  
Proteus morgani 8019 (1)  
Saccharomyces carlsbergensis 9080 (1)  
Saccharomyces cerevisiae 7752



## USES

### Riboflavin

- Lactobacillus bulgaricus* 7993 (1)
- Lactobacillus casei* 7469 (1)
- Streptococcus* sp. 10100 (1)

### Thiamine

- Ashbya gossypii* 8717
- Ceratocystis fimbriata* 10804 (7)
- Lactobacillus fermenti* 9338 (1)
- Leuconostoc mesenteroides* 9135 (8)
- Neurospora crassa* 10333
- Saccharomyces cerevisiae* var. *ellipsoideus* 7753 (1)
- Streptococcus salivarius* 9222 (1)

### Vitamin B<sub>6</sub>

- Escherichia coli* 12651
- Pyridoxal
  - Lactobacillus casei* 7469 (1)
  - Lactobacillus delbrueckii* 9649
- Pyridoxal and pyridoxamine
  - Streptococcus faecalis* 8043 (*S. lactis* R) (1)
- Pyridoxal, pyridoxamine and pyridoxine
  - Neurospora sitophila* 9276 (1)
  - Saccharomyces carlsbergensis* 9080 (1)
  - Saccharomyces cerevisiae* 7752 (1)

### Vitamin B<sub>12</sub>

- Arthrobacter* sp., Lochhead 38, 12834 (11)
- Escherichia coli* 10586
- Euglena gracilis* 12716
- Lactobacillus lactis* 8000, 10697, 10705
- Lactobacillus leichmannii* 4797, 7830 (9)
- Ochromonas malhamensis* 11532 (10)

- 
- (1) "Vitamin Methods," (Paul György, editor), Vol. 1, Academic Press, New York. 1950.
  - (2) *J. Bact.*, 1955, 69, 67.
  - (3) *J. Bact.*, 1944, 47, 509.
  - (4) *Proc. Soc. Exptl. Biol. Med.*, 1955, 89, 210.
  - (5) Jukes, Thomas H. 1955. In "Methods of Biochemical Analysis" (David Glick, editor), Vol. 2, pp. 121-151. Interscience Publishers, Inc., New York.
  - (6) *Arch. Biochem.*, 1944, 4, 211.
  - (7) *Mycologia*, 1952, 39, 699.
  - (8) *J. Bact.*, 1943, 46, 441.
  - (9) *U. S. Pharmacopoeia* XIV, 3rd Supp., 1952, p. 17; 4th Supp., 1954, p. 12.
  - (10) *Brit. J. Nutr.*, 1953, 7, 299.
  - (11) *Canadian J. Microbiol.*, 1957, 3, 329.

## USES

### 4. Miscellaneous Determinations

#### Adenine

*Neurospora crassa* 11063 (1)

#### Citrovorum factor (Folinic acid)

*Pediococcus cerevisiae* 8081 (2)

Coenzyme A: see phosphotransacetylase production (p. 177)

#### Cytidine

*Neurospora crassa* 11993 (3)

#### Cytosine

*Lactobacillus brevis* 8287 (4)

#### Desoxyribosides

*Lactobacillus acidophilus* 4963, 11506 (5, 6)

#### Formic acid

*Clostridium cylindrosporum* 7905

#### Inorganic ions (7)

##### Minerals in soils

Copper, Molybdenum, Magnesium and Zinc

*Aspergillus niger* 6275, 10581

##### Potassium

*Aspergillus niger* 6277 (8)

*Lactobacillus casei* 7469 (9)

##### Manganese in biological materials

*Bacillus subtilis* 6633 (10)

##### Nitrate

*Bacillus* sp. 12480

#### Orotic acid

*Lactobacillus bulgaricus* 10812

#### Panthenol

*Acetobacter suboxydans* 621H (11)

#### Pantethine

*Lactobacillus bifidus* var. *pennsylvanicus* 11863 (12)

*Lactobacillus helveticus* 12046

#### Thioctic acid

*Streptococcus faecalis* 11700 (manometric)

#### Thymidine

*Lactobacillus leichmannii* 7830

*Lactobacillus lactis* 8000

*Leuconostoc mesenteroides* 8293

#### Thymine (13)

*Escherichia coli* 9723h

*Lactobacillus* sp. 335 (4)

## USES

### Uracil

*Lactobacillus brevis* 8287 (4)

*Lactobacillus* sp. 335 (4)

### Uridine

*Neurospora crassa* 11993 (3)

### Xylose

*Hansenula suaveolens* 9847

- 
- (1) J. Biol. Chem., 1949, 177, 451.
  - (2) Methods of Biochemical Analysis, Vol. 2. Interscience Pub., New York. 1955.
  - (3) J. Biol. Chem., 1948, 176, 1123.
  - (4) J. Biol. Chem., 1950, 186, 331.
  - (5) J. Amer. Chem. Soc., 1950, 72, 811.
  - (6) Biochem. J., 1952, 50, 400.
  - (7) Snell, Esmond E. 1957. In "Trace Analysis" (Yoe, J.H. and Koch, H.J., editors), pp. 547-574. John Wiley and Sons, Inc., New York.
  - (8) Soil Science, 1955, 80, 199.
  - (9) J. Biol. Chem., 1944, 154, 307.
  - (10) Science, 1951, 114, 687.
  - (11) Anal. Chem., 1949, 21, 823.
  - (12) J. Bact., 1955, 69, 483.
  - (13) Methods of Biochemical Analysis, Vol. 6. Interscience Pub., New York. 1958.

## B. ORGANISMS FOR PRODUCTION

### 1. Antibiotic Production

Actinomycin - *Streptomyces antibioticus* 8663

Alternaric acid - *Alternaria solani* 11078

Anisomycin - *Streptomyces griseolus* 11796

Antimycin A - *Streptomyces* sp. 11862

Aspergillic acid - *Aspergillus flavus* 9170

Aureomycin - *Streptomyces aureofaciens* 10762

Bacillomycin B - *Bacillus subtilis* 10774

Bacitracin - *Bacillus licheniformis* 10716

Cephalosporin - *Cephalosporium* sp. 11550

Chaetomin - *Chaetomium cochlioides* 10195

Chloromycetin - *Streptomyces venezuelae* 10595, 10712

Citrinin - *Penicillium citrinum* 8506

Clavacin - *Aspergillus clavatus* 9192, 9598

Diplococcin - *Streptococcus* sp. 10035

## USES

Erythromycin - *Streptomyces erythreus* 11635

Flavicin - *Aspergillus flavus* 9296

Fumigacin - *Aspergillus fumigatus* 9197

Gladiolic acid - *Penicillium gladioli* 9437

Gliotoxin - *Aspergillus fumigatus* 9197

Gramicidin - *Bacillus brevis* 8185, 10068

Gramicidin S - *Bacillus brevis* 9999

Grisein - *Streptomyces griseus* 3478

Griseofulvin - *Penicillium nigricans* (*janczewskii*) 9439

Humicolin - *Aspergillus asperescens* 11079

Neomycin - *Streptomyces fradiae* 10745

Nisin - *Streptococcus lactis* 11454

Nystatin (Fungicidin) - *Streptomyces noursei* 11455

Penicillic acid - *Penicillium cyclopium* 8731, 10433

Penicillin - *Penicillium chrysogenum* 9480, 10002, 10003, 10238

*Penicillium notatum* 9178, 9478, 9479

Polymyxin - *Bacillus polymyxa* 10401

Proactinomycin - *Nocardia gardneri* 9604

Spinulosin - *Aspergillus fumigatus* 10894

Streptocin - *Streptomyces griseus* 10971

Streptomycin - *Streptomyces griseus* 10137

Streptothricin - *Streptomyces lavendulae* 8664

Subtilin - *Bacillus subtilis* 6633

Synnematin - *Emericellopsis salmosynnemata* 11661

Terramycin - *Streptomyces rimosus* 10970

Tyrocidin - *Bacillus brevis* 8185, 10068

Ustilagic acid - *Ustilago maydis* 11427

Vinactin - *Streptomyces vinaceus* 11861

Viridin - *Trichoderma viride* 10043, 10044, 10045, 10046

Violacein - *Chromobacterium violaceum* 553

## 2. Production of Acids, Alcohols, Enzymes, etc. (1)

### Acetone

*Clostridium acetobutylicum* 824, 10132

### Acetylcholine

*Lactobacillus plantarum* 10241

### 6-O-acetyl-D-glucopyranose

*Bacillus megaterium* 10778 (2)

## USES

### Amylase (bacterial)

*Bacillus macerans* 8516, 8517

*Bacillus polymyxa* 8523

*Bacillus stearothermophilus* 7954 (3)

### Amylase (fungal) (4)

*Aspergillus niger* 10254

*Aspergillus oryzae* 9102, 10196, 11601

*Endomycopsis fibuliger* 2082, 9947

### Ascorbic acid

*Escherichia* sp. 9492

*Staphylococcus aureus* 9491 (conversion of dehydroascorbic acid)

Butyl alcohol: see under acetone

2, 3 Butylene glycol

*Bacillus polymyxa* 12321

### $\beta$ -Carotene

*Choanephora cucurbitarum* 12997(+), 12998(-)

### Citric acid

*Aspergillus niger* 1015, 6276, 9142, 10577, 11414

### Citrulline from arginine

*Streptococcus faecalis* 11420

### Collagenase

*Clostridium histolyticum* 8034

### Decarboxylases, for assay of (5)

#### Aspartic acid

*Clostridium perfringens* 8009 (NCTC 6784)

#### Arginine

*Escherichia coli* 10787 (NCTC 7020)

#### Glutamic acid

*Clostridium perfringens* 8009 (NCTC 6784)

*Escherichia coli* 4157, 11246 (6)

#### Diaminopimelic acid

*Escherichia coli* 9637

#### Histidine

*Clostridium perfringens* 10873 (NCTC 6785)

#### Lysine

*Bacterium cadaveris* 9760 (NCTC 6578)

#### Tyrosine

*Streptococcus faecalis* 8043, 11420 (NCTC 6782)

### Desoxyribonuclease

*Streptococcus* sp. 10706

### Dextrans (7)

*Leuconostoc mesenteroides* 10830a, 11449

### Ergosterol

*Penicillium chrysogenum* 10002

*Saccharomyces carlsbergensis* 2345



## USES

### Ethyl alcohol

*Absidia* sp. 10239

*Saccharomyces cerevisiae* 4109, 4132, 9763

*Saccharomyces* sp. 765

### Fibrinolysin

*Streptococcus pyogenes* 12380

### Folinic acid from folic acid

*Lactobacillus casei* 7469 (8)

### $\beta$ -Galactosidase

*Escherichia coli* 9637

### Gibberellic acid

*Gibberella fujikuroi* 12616, 12617, 12618

### Gluconic acid

*Aspergillus niger* 8740, 9029 (9)

*Penicillium chrysogenum* 10107

### d-Glutamic acid

*Bacillus licheniformis* 9945 (10)

### Histamine from histidine

*Escherichia coli* 8329, 8330

### Hyaluronidase

*Streptococcus pyogenes* 10402, 10403

*Streptococcus* sp. 12747

### Itaconic acid

*Aspergillus itaconicus* 10021

*Aspergillus terreus* 10020, 10029

### 5-Ketogluconic and the 2-keto acid (11)

*Acetobacter gluconicum* 9324

*Acetobacter kuetzingianus* 6439

*Acetobacter suboxydans* 621

### Kojic acid

*Aspergillus flavus* 10124

*Aspergillus oryzae* 7252

### d-Lactic acid

*Bacillus coagulans* 10545

*Lactobacillus casei* 7469, 9595

### l-Lactic acid

*Lactobacillus bulgaricus* 11842

*Lactobacillus delbrueckii* 9649, 11443

### Maltase

*Aspergillus niger* 10864

### d-Methionine from l-methionine

*Streptococcus faecalis* 9790 (12)

## USES

### Penicillinase

*Bacillus cereus* 10876

*Bacillus subtilis* 9799

### Phosphotransacetylase for Coenzyme A assay

*Clostridium kluyveri* 12489 (13)

### Receptor-destroying enzyme for human erythrocytes

*Vibrio comma* 11623

### Riboflavin

*Ashbya gossypii* 8717, 10895

*Bacillus megaterium* 10778

*Candida guilliermondii* 9058

*Candida krusei* 749

*Eremothecium ashbyii* 6747

*Torulopsis candida* 10539

*Yeast sp.* 9951

### 1-Sorbose from d-sorbitol

*Acetobacter suboxydans* 621

### Steroids, transformation of (14)

*Aspergillus niger* 11394 (15)

*Bacillus megaterium* 10778 (16)

*Botrytis cinerea* 12481 (17)

*Botrytis paeoniae* 12482 (17)

*Cunninghamella blakesleeana* 8688a (18)

*Curvularia lunata* 12017 (19)

*Rhizopus arrhizus* 11145 (20)

*Rhizopus nigricans* 6227b (20)

*Streptomyces fradiae* 10745

*Trichothecium roseum* 8685

### Streptokinase: see Fibrinolysin

### Streptolysin "O"

*Streptococcus pyogenes* 10389, 12383

### Streptolysin "S"

*Streptococcus pyogenes* 8668

### Thiaminase

*Bacillus thiaminolyticus* 11376

### Tyrosinase

*Streptomyces phaeochromogenus* 3338

### Urease

*Bacillus pasteurii* 6452, 11859

*Brevibacterium ammoniagenes* 6871

*Proteus vulgaris* 8427

### Vi antigen

*Escherichia coli* 10053

## USES

### Vitamin B<sub>12</sub>

- Bacillus megaterium 10778 (21)
- Flavobacterium devorans 10829
- Propionibacterium freudenreichii 6207 (22)
- Streptomyces griseus 3478
- Streptomyces sp. 11009, 11071, 11071a

- 
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  - (5) Methods of Biochemical Analysis, Vol. 4, pp. 285-306. Interscience Pub., New York. 1957.
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  - (8) Science, 1953, 117, 563.
  - (9) Ind. and Engin. Chem., 1952, 44, 435.
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  - (11) Arch. Biochem. and Biophys., 1954, 50, 169.
  - (12) Ibid., p. 9.
  - (13) Methods of Biochemical Analysis, Vol. 2, p. 204. Interscience Pub. New York. 1955.
  - (14) Vitamins and Hormones (Harris, Robert S., Marrian, G.F. and Thimann, K.V., editors), Vol. 14, pp. 359-432. Academic Press Inc., New York. 1956.
  - (15) Appl. Microbiol., 1955, 6, 336.
  - (16) Arch. Biochem. and Biophys., 1958, 73, 127.
  - (17) U.S. Patent 2,789,940.
  - (18) Appl. Microbiol., 1955, 3, 14.
  - (19) J. Amer. Chem. Soc., 1955, 77, 763.
  - (20) J. Amer. Chem. Soc., 1954, 76, 3174.
  - (21) Ind. and Engin. Chem., 1953, 45, 838.
  - (22) Ind. and Engin. Chem., 1952, 44, 2651.

## C. MISCELLANEOUS USES

### Antibiotic resistant strains

#### Dihydrostreptomycin

- Micrococcus flavus 10240a (PCI 1216/D)
- Sarcina lutea 9341a (PCI 1001/D)
- Staphylococcus aureus 6538DR (PCI 1209/D)

#### Oxytetracycline

- Bordetella bronchiseptica 12714 (PCI 1701/O)

#### Tetracycline group

- Staphylococcus aureus 12715 (PCI 1209/T)

#### Novobiocin

- Staphylococcus aureus 12692 (PCI 1209/N)

### Antigen preparation

- Brucella abortus 11192

## USES

### Arsenicals detection

*Scopulariopsis brevicaulis* 7903 (1)

### Bacterial spectrum of antibiotics

*Mycobacterium phlei* 10142

### Cellulolytic strain

*Streptomyces* sp. 11238 (2)

### Fungicide tests

*Alternaria brassicicola* 12251

*Sclerotinia fructicola* 9962

*Stemphylium sarciniforme* 10828

*Trichophyton mentagrophytes* 9533

### Fungistatic antibiotics assessment

*Botrytis allii* 9435

### Germicide tests

*Candida albicans* 10231

*Escherichia coli* 11229

*Salmonella typhosa* 6539

### Lactic starters

for buttermilk, cheese, etc. 10385

for Swiss cheese "Ga" 9223

### Lipolytic strains

*Achromobacter lipolyticum* 11367

*Candida lipolytica* 8661, 8662

### Luminescence demonstration

*Photobacterium fischeri* 7744

### Lysozyme test strain

*Micrococcus lysodeikticus* 4698

### Mildew-proofing tests

*Aspergillus clavatus* 1007 (3)

*Aspergillus flavus* 1003, 9643, 9807 (4, 5)

*Aspergillus fumigatus* 1028

*Aspergillus niger* 6275, 6277, 9642, 10535, 10575 (4, 5)

*Aspergillus oryzae* 10196 (6)

*Aspergillus tamaris* 10836 (7)

*Aspergillus terreus* 10690 (7)

*Aspergillus ustus* 10760

*Chaetomium globosum* 6205 (7)

*Fusarium oxysporum* 659

*Memnoniella echinata* 9597, 11973 (3, 7)

*Myrothecium verrucaria* 9095 (7)

*Penicillium citrinum* 9849 (7)

*Penicillium commune* 10428 (3)

*Penicillium funiculosum* 9644 (7)

*Penicillium ochro-chloron* 9112 (7)

*Penicillium vermiculatum* 9776 (7)

## USES

### Mildew-proofing tests (Continued)

*Rhizopus nigricans* 10404 (7)

*Stachybotrys atra* 9182

*Stemphylium* sp. 9569

*Trichoderma* sp. 9645 (5)

### Opsono-cytophagic testing

*Brucella abortus* 9539

### Phenol coefficient tests

*Candida albicans* 10231

*Clostridium novyi* 3540

*Salmonella typhosa* 6539

*Staphylococcus aureus* 6538

### Protein digestion coefficients

*Pseudomonas aeruginosa* 10145 (8)

### Proteolytic strains: also see production of amylase (bacterial)

*Aspergillus flavus* 9376

*Aspergillus oryzae* 9362, 11866

*Bacillus subtilis* 9943

### Pyrogen preparation

*Pseudomonas* spp. 9229, 9230

### Sterility test strains

*Bacillus subtilis* 9466

*Candida albicans* 10231

*Clostridium novyi* 3540

*Clostridium sporogenes* 7955

Diphtheroid 12458, 12560

*Escherichia coli* 8739, 11229

Gram-positive coccus 12457, 12459

*Streptococcus* typing cultures: see *Streptococcus pyogenes*, desired type

*Streptococcus* grouping cultures: see *Streptococcus pyogenes* and

*Streptococcus* spp., desired group

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(1) *Biochem. J.*, 1948, 43, 78.

(2) *J. Bact.*, 1950, 59, 485.

(3) *Mil. Spec.*, CCC-T-191b.

(4) *Mil. Spec.*, MIL-F-2319.

(5) *Mil. Spec.*, JAN-C-173.

(6) *Mil. Spec.*, JAN-P-630.

(7) *Mil. Spec.*, MIL-E-5272A.

(8) *J. Nutrition*, 1955, 56, 437.





